

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

TQ DELTA, LLC., ( CAUSE NO. 2:21-CV-310-JRG  
)  
Plaintiff, ( )  
vs. ( )  
COMMSCOPE HOLDING COMPANY, ( )  
INC., et al., ( ) MARSHALL, TEXAS  
( MARCH 23, 2023  
Defendants. ) 8:30 A.M.

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VOLUME 5

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TRIAL ON THE MERITS

BEFORE THE HONORABLE RODNEY GILSTRAP  
UNITED STATES CHIEF DISTRICT JUDGE

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1 THE COURT: Be seated, please.

2 Are the parties prepared to read into the record those  
3 items from the list of pre-admitted exhibits that were used  
4 during yesterday's portion of the trial?

5 MR. WILSON: Yes, Your Honor.

6 THE COURT: Let's proceed.

7 MR. WILSON: Your Honor, Ty Wilson on behalf of  
8 Plaintiff TQ Delta. And at trial on March 22nd, 2023, TQ  
9 Delta admitted the following exhibits: Exhibit 64 and Exhibit  
10 106.

11 THE COURT: Any objection to that rendition from the  
12 Defendants?

13 MS. BEATON: No, Your Honor.

14 THE COURT: Do the Defendants have a similar  
15 rendition to offer?

16 MS. BEATON: Yes, Your Honor.

17 THE COURT: Please proceed.

18 MS. BEATON: Yesterday on Wednesday, March 22nd,  
19 2023, the Defendants admitted Exhibit 47, 48, 50, 52, 57, and  
20 61.

21 THE COURT: All right. Any objection to that  
22 rendition from the Plaintiff?

23 MR. WILSON: No objection from Plaintiff, Your  
24 Honor.

25 THE COURT: All right. Thank you, counsel.

1 MS. BEATON: Your Honor, if I may.

2 THE COURT: Yes.

3 MS. BEATON: Upon reviewing the transcript from  
4 Tuesday, we noticed there was a small transcription error on  
5 one of the exhibits. Can we correct that on the record?

6 THE COURT: Tell me what you noticed.

7 MS. BEATON: We noticed that it said 38-E when I  
8 meant to say 38-B.

9 THE COURT: All right. Any objection from Plaintiff  
10 to making that adjustment?

11 MR. WILSON: There's no objection, Your Honor.

12 THE COURT: All right. We'll note in the record the  
13 inaccuracy and the correction of it.

14 MS. BEATON: Thank you so much.

15 THE COURT: Thank you.

16 All right. Defendants, are you prepared to go forward  
17 with your next witness?

18 MR. BARTON: We are, Your Honor, but there was the  
19 issue of a proffer that we raised at the end of the day  
20 yesterday. I don't know if this is the right time to do that.

21 THE COURT: How long do you think it will take, Mr.  
22 Barton?

23 MR. BARTON: One or two minutes.

24 THE COURT: Let's do it right now then.

25 MR. BARTON: Mr. Stevens will handle that.

1 THE COURT: All right. Proceed with your proffer,  
2 Mr. Stevens.

3 MR. STEVENS: Yes. We would proffer into the record  
4 what was originally marked back at the pretrial hearing as DX  
5 22. It is source code that was produced under the production  
6 number CommScope\_SC 1 through 581. The exhibit was excluded  
7 based upon 403. We believe that exhibit was timely-produced  
8 source code. It's CommScope's source code, and it had  
9 exculpatory evidence on the questions of infringement.

10 THE COURT: All right. Your proffer is noted. The  
11 Court's prior ruling is reaffirmed.

12 All right. Is there anything further we need to address  
13 before I bring in the jury and we proceed with Doctor Wesel?

14 MR. BARTON: Nothing from the Defendants, Your  
15 Honor.

16 THE COURT: Is Plaintiff ready to proceed?

17 MR. DAVIS: We're ready, Your Honor.

18 THE COURT: Let's bring in the jury, please.

19 (Whereupon, the jury entered the courtroom.)

20 THE COURT: Good morning, ladies and gentlemen.  
21 Good to see you. Please have a seat.

22 We'll continue with the Defendants' case in chief.  
23 Defendants, call your next witness.

24 MS. WROBLEWSKI: Defendants call Dr. Richard Wesel.

25 THE COURT: All right. Doctor Wesel, if you'll come

1 forward and be sworn by our Courtroom Deputy.

2 (Whereupon, the oath was administered by the Clerk.)

3 THE COURT: Please come around, sir, have a seat at  
4 the witness stand.

5 Counsel, you might adjust that microphone so it's --

6 MS. WROBLEWSKI: Yes, Your Honor.

7 THE COURT: -- pointing at you a little better.

8 MS. WROBLEWSKI: Is this audible?

9 THE COURT: If I don't hear you well, I'll let you  
10 know.

11 MS. WROBLEWSKI: Thank you.

12 THE COURT: All right. Ms. Wroblewski, you may  
13 proceed with direct examination.

14 RICHARD WESEL, Ph.D., SWORN,

15 having been duly sworn, testified under oath as follows:

16 DIRECT EXAMINATION

17 BY MS. WROBLEWSKI:

18 Q. Good morning, Doctor Wesel.

19 A. Good morning.

20 Q. Can you please introduce yourself to the jury?

21 A. Hi. I'm Richard Wesel.

22 Q. And can you please tell us a little bit about yourself?

23 A. Sure. I'm a professor at UCLA. I live in Los Angeles.  
24 My wife and I have three children. Our youngest is in high  
25 school.

1 Q. And, Doctor Wesel, can you please tell us a little bit  
2 about your role in this litigation?

3 A. Sure. I was engaged by CommScope to give my opinions on  
4 whether or not the claim 5 of the '048 Patent is invalid.

5 Q. And did you prepare some demonstratives to assist with  
6 your discussion today?

7 A. Yes, I did, and the first slide is my background.

8 Q. Doctor Wesel, where did you go to school?

9 A. So I -- for my undergraduate degree, I went to MIT and  
10 then I stayed at MIT for my Master's degree. Then I went to  
11 Stanford for my Ph.D. All of my degrees were in electrical  
12 engineering.

13 Q. And while you were in school, did you have any jobs at  
14 that time?

15 A. Yes. The summer after my freshman year, I did research  
16 at a naval lab. And then after that, I had three internships  
17 at AT&T Bell Laboratories. And then when I graduated from  
18 MIT, I went to AT&T Bell Laboratories to work in the same  
19 organization I had been interning with as a member of  
20 technical staff. And then after two years at Bell Labs,  
21 that's when I went to Stanford for my Ph.D.

22 Q. And what did you do after you received your Ph.D.

23 A. After I received my Ph.D., I went to UCLA as an assistant  
24 professor, and I've been at UCLA ever since. I've spent my  
25 life working to make communication systems more efficient and



1 more reliable.

2 Q. And what specifically have you worked on as a professor?

3 A. So I work -- basically I work on communication systems.

4 I work on developing better coded modulation systems. The

5 interplay of coding and interleaving is one thing that I

6 studied. I -- yeah, I work on feedback messages and

7 communication systems. I've done some work on coding in the

8 context of multicarrier modulation.

9 Really a wide variety of things, working on what we call  
10 the physical layer, that specific communication like.

11 Q. And how do all of those concepts, how do they relate to  
12 DSL?

13 A. So all the things that I talked about are concepts that

14 show up in DSL systems. DSL systems use coded modulation,

15 they use interleavers, they use multicarrier modulation.

16 These are all things that I have studied.

17 THE COURT: Doctor Wesel, could you slow down just a  
18 little bit, please? You speak a little more slowly?

19 THE WITNESS: Oh, I will -- I will try very hard to  
20 do that, Your Honor.

21 THE COURT: Please try to. I want to make sure the  
22 jury follows you. And these are things you live with every  
23 day. They are not things that the rest of us live with every  
24 day. So I want to make sure everyone follows your testimony,  
25 so please try to slow down.

1           Go ahead, counsel.

2           Q.     (BY MS. WROBLEWSKI) Doctor Wesel, do you have any  
3     publications related to telecommunications?

4           A.     Yes. As I said, I've been doing this for 27 years, and I  
5     have over 200 publications on communication systems.

6           Q.     Have you authored any books?

7           A.     Actually my wife wrote a book on wireless communications,  
8     and I wrote the chapter in that book on coded -- on error  
9     control coding.

10          Q.     And do you have -- have you received any awards that  
11     demonstrate your success in telecommunications?

12          A.     Yes. I received the National Science Foundation Career  
13     Award. I've also received the Okawa Foundation Award in  
14     telecommunications. And I've also -- I was selected as a  
15     fellow of the IEEE.

16          Q.     And, Doctor Wesel, do you have any patents?

17          A.     Yes. I have nine patents.

18                 MS. WROBLEWSKI: Your Honor, I move Doctor Wesel be  
19     admitted as an expert in telecommunications and the subject  
20     matter of the asserted patents.

21                 THE COURT: Is there objection?

22                 MR. HURT: No objection, Your Honor.

23                 THE COURT: All right. Then without objection, the  
24     Court will recognize this witness as an expert in those  
25     designated fields.

1 Please continue.

2 MS. WROBLEWSKI: Thank you, Your Honor.

3 Q. (BY MS. WROBLEWSKI) Doctor Wesel, do you have an opinion  
4 about the appropriate level of skill in the art as it relates  
5 to the '048 Patent?

6 A. Yes, I do. In my opinion, a person of ordinary skill in  
7 the art for the '048 Patent would have a Bachelor's degree in  
8 electrical engineering and about six to seven years of  
9 experience, but you could have more education and then  
10 correspondingly less work experience.

11 Q. And does that TQ Delta also have a definition of skill in  
12 the art?

13 A. They do. It's slightly less rigorous than mine.

14 Q. And under either definition, would you have qualified as  
15 a person of skill in the art at the time of the filing of the  
16 '048 Patent?

17 A. Certainly.

18 Q. Did you review and apply the Court's claim construction  
19 in forming your opinions for this case?

20 A. Yes, I did.

21 Q. Doctor Wesel, what is the title of the '048 Patent?

22 A. Resource Sharing in a Telecommunications Environment.

23 Q. And what is the relevant date of the '048 Patent?

24 A. The relevant date is October 12th of 2004.

25 Q. And can you please explain the significance of that date

1 for purposes of an invalidity analysis?

2 A. Sure. When we're doing an invalidity analysis, we need  
3 to look at documents that were available before that date.

4 MS. WROBLEWSKI: If we could go back to slide 5.  
5 Thank you.

6 Q. (BY MS. WROBLEWSKI) Doctor Wesel, could you please  
7 explain the timeline on the slide as it relates to the  
8 development of VDSL in the '048 Patent?

9 A. Sure. I'd be happy to. How about if I start with the  
10 red boxes?

11 Q. That would be great.

12 A. Okay. So the red boxes are kind of like the VDSL1  
13 series. So in October of 2011 -- excuse me. In October of  
14 2001, there was an early version of ITU VDSL1, and so we'll  
15 call that ITU version 1. Then in 2003, there was an European  
16 version of VDSL1. We'll call that the ETSI version. And then  
17 in June of 2004, there was VDSL1 ITU version 2. It was very  
18 similar to the European version.

19 And then in -- later in 2004, that's when -- as we just  
20 discussed, in October of 2004, that's when the '048 Patent has  
21 its priority date.

22 Q. And could you walk us through the green boxes on the top  
23 of the screen?

24 A. Sure. So right around the same time that VDSL1 version  
25 2, that we're going to be looking at in a little bit, was

1 publicly available, there was this proposal from Texas  
2 Instruments that we've been talking about a lot. Some people  
3 call it LB-31, but it was Texas Instruments' proposal.

4 And then in 2006 a version of VDSL2 was released and  
5 ultimately that -- yeah, so --

6 Q. And so between the VDSL1 and '048 approach in the red  
7 boxes and the Texas Instruments approach in the green boxes,  
8 can you explain those differences between the two?

9 A. Sure. So the difference that we care about is that in  
10 the red boxes, and specifically in the ETSI version of VDSL1  
11 and the ITU version 2 of VDSL1 and in the '048 Patent, all of  
12 those pieces of art feature a message that communicates a  
13 maximum amount of memory.

14 And then in the TI contribution and later in the VDSL2  
15 standard, there is not a message like that and instead there  
16 is a message that communicates about the interleaver using  
17 delay.

18 Q. So even though TI describes a different way of describing  
19 the interleaver, is it prior art to the '048 Patent?

20 A. Yes. It's prior art both in the sense that its date is  
21 before the '048 Patent, and that it discloses something that  
22 we care about in the '048 Patent, because even though it's  
23 saying that you ought to use delay, it also in passing says  
24 that you could use a maximum amount of memory.

25 Q. Turning to the next slide, so this is VDSL1 in those red

1 boxes on the timeline. How did --

2 A. Wait. Can you just go back to the red slides for just a  
3 second --

4 Q. Sure.

5 A. -- so we can -- because there are a lot of red boxes?

6 Q. Yeah.

7 A. So just to make it clear, the document that we're about  
8 to show you is the red box VDSL1 ITU version 2. It's just to  
9 the left of the line that goes up to TI contribution proposed.

10 Q. And how does VDSL1 describe an interleaver?

11 A. Well, it communicates about the interleaver using maximal  
12 -- and this message that's in R message 2, this is a message  
13 that is sent -- the R means it's a message that's sent from  
14 the CPE to the central office. R means remote, and that's  
15 sometimes what they call the CPE.

16 So this is a message sent from the CPE to the central  
17 office communicating a maximum amount of interleaver memory  
18 specified in bytes.

19 Q. And how did Texas Instruments talk about using an  
20 interleaver?

21 A. Well, this Texas Instruments proposal says that you  
22 really ought to specify interleaver complexity not in terms of  
23 an amount of memory, but, rather, specify it in terms of  
24 delay.

25 Q. So which portion, the yellow portion or the red portion,

1 was the disclosure that you said was prior art to the '048  
2 Patent?

3 A. Yeah. So the disclosure that we care about is actually  
4 what it's saying not to do. It's saying not in terms of an  
5 amount of memory. So there's this notion when you're doing an  
6 analysis like this, that something can be obvious if it's one  
7 of a small number of possible choices that you could make.

8 And this document is giving us really three  
9 choices--delay, an amount of memory, and there's another thing  
10 that we're really not going to talk much about, interleaver  
11 depth. There's three options in this proposal, but one of  
12 them was an amount of memory.

13 Q. And, Doctor Wesel, was the portion in yellow here, was  
14 that incorporated or was the concepts of LB-31 incorporated  
15 into the VDSL2 standard, so those green boxes we were talking  
16 about?

17 A. Yes. The concept of communicating about memory using  
18 delay in octets, which was proposed in LB-31, was indeed  
19 adopted into the VDSL2 standard.

20 Q. Were you here yesterday for Doctor Ransom's testimony?

21 A. Yes, I was.

22 Q. And did you hear TQ Delta's counsel indicate that Mr.  
23 Dacus was wrong when he told the jury that LB-31 was adopted  
24 into the VDSL2 standard?

25 A. Yes, I did hear that.

1 Q. Do you agree with that?

2 A. No, I -- I don't agree with it.

3 Q. And can you specifically tell me why?

4 A. Well, I'd like to look at --

5 MR. HURT: Your Honor, may we approach?

6 THE COURT: Approach the bench, counsel.

7 (The following was had outside the hearing of the  
8 jury.)

9 THE COURT: What is it, Mr. Hurt?

10 MR. HURT: Your Honor, this is not in his expert  
11 report addressing LB-031. He addresses and says, just in  
12 paragraph 222, that the idea for LB-031 was incorporated into  
13 VDSL2, but he didn't have any opinion about that document or  
14 anything from yesterday.

15 THE COURT: What's your response, Ms. Wroblewski?

16 MS. WROBLEWSKI: I do not intend to affirmatively  
17 raise the document that Mr. Hurt referenced. This is elected  
18 prior art and, as he indicated, it is expressly in the  
19 document that LB-31 was incorporated into the VDSL2 standard.  
20 And I'm happy to allow you to take a look at this, but I do  
21 not intend to get into the document that is not cited in his  
22 report.

23 THE COURT: All right. Well, I'll permit you to go  
24 as far as the report permits but not any further.

25 MR. HURT: Okay.



1 THE COURT: Also, do you know a way to slow this man  
2 down?

3 MS. WROBLEWSKI: I'll try, Your Honor.

4 THE COURT: You're fine, but he is off to the races  
5 and --

6 MS. WROBLEWSKI: Yes. When I start, I'll ask him  
7 to --

8 THE COURT: Okay.

9 MS. WROBLEWSKI: -- slow his pace.

10 THE COURT: All right. Let's continue.

11 MR. HURT: Thank you, Your Honor.

12 MS. WROBLEWSKI: Thank you.

13 (The following was had in the presence and hearing  
14 of the jury.)

15 THE COURT: All right, counsel. Let's proceed.

16 Q. (BY MS. WROBLEWSKI) Before we get going, Doctor Wesel,  
17 just so both of us are made sure we're understood, let's try  
18 to slow it down as much as we can. Is that okay?

19 A. Absolutely.

20 Q. Okay. And you were explaining why you -- or I'll just  
21 ask the question again. Do you believe that LB-31 was in fact  
22 incorporated into VDSL2?

23 A. The concept of using delay in octets to communicate about  
24 the interleaver, which was proposed by LB-31, was adopted into  
25 the VDSL2 standard.

1 Q. And can you give us an example specifically of where it  
2 was adopted in VDSL2?

3 A. I can. Is it possible that we could look at LB-31 for  
4 just a second before I do that?

5 Q. Sure.

6 MS. WROBLEWSKI: If we could turn to Exhibit 61, Mr.  
7 Carrillo.

8 THE COURT: And I'm not going to inject myself any  
9 further in this than I need to, but I do want to remind the  
10 witness, he's here to answer counsel's questions, not to  
11 instruct counsel on what to show him and show the jury or what  
12 to go back to.

13 You're in a responsive role here. It may be that that's  
14 not the role you're in in the classroom where you're giving a  
15 lecture, but here you are responding to counsel's questions as  
16 counsel chooses to present them. And the lawyers are in  
17 charge of the examination, both direct and cross, not the  
18 witnesses.

19 So I'm going to ask you not to either inquire of counsel  
20 or instruct counsel or ask for something that counsel may or  
21 may not have shown you. It's her job to put what's proper and  
22 appropriate and persuasive in front of you. And if she  
23 doesn't do that, it's not your job to ask her to go back and  
24 do it again or put something else out there that she hasn't  
25 done.

1           So please keep that in mind as we go forward. All right?

2           THE WITNESS: Yes, Your Honor.

3           THE COURT: Thank you.

4           Let's proceed, counsel.

5           MS. WROBLEWSKI: If we could go to page 3, and if  
6 you would zoom in on that bottom paragraph.

7 Q. (BY MS. WROBLEWSKI) Doctor Wesel, what disclosure within  
8 LB-31 do you believe was incorporated into VDSL2?

9 A. So if you look at the bottom paragraph and you look at  
10 the first sentence of that paragraph, that's all we need to  
11 focus on -- well, there's one more sentence, but that's the  
12 main point.

13           So for interoperability reasons, so we don't have to  
14 worry about specific implementations, the VTU-0 and the VTU-R  
15 must exchange the interleaver delay in terms of octets.  
16 That's all we really needed to highlight.

17           And then the last sentence on the page, again, the actual  
18 amount of memory required is implementation-specific. These  
19 are the key two sentences about LB-31 that you need to know.  
20 And if we go look at section 6.8 of the VDSL2 standard, you'll  
21 find two very similar sentences. And as we've heard earlier  
22 in the trial, in fact, delay\_octets is what is used to  
23 communicate about the interleaver in VDSL2.

24           MS. WROBLEWSKI: If we could go back to the  
25 presentation.

1 Q. (BY MS. WROBLEWSKI) Looking back at our timeline, does  
2 the '048 Patent adopt the new TI contribution way of doing  
3 things or does it adopt the VDSL1 old way of doing things?

4 A. It adopts the old way. It communicates about the  
5 interleaver using a message that specifies the maximum amount  
6 of interleaver memory in bytes.

7 Q. And how does the patent describe this?

8 A. Well, we can just look at the abstract, and it says that  
9 it's going to specify a maximum number of bytes that are  
10 available to be allocated to an interleaver.

11 Q. And, Doctor Wesel, based on the prior art that you have  
12 reviewed, is the asserted claim of the '048 Patent old or is  
13 it new?

14 A. The asserted claim of the '048 Patent is old because all  
15 of the things that it describes were available in the prior  
16 art documents that we're going to look at in just a second.

17 Q. What was the first reference that you considered with  
18 respect to your invalidity analysis?

19 A. It's a patent by Simone Mazzoni and Helene Came.

20 Q. And what about Mazzoni led you to choose this as part of  
21 your invalidity analysis?

22 A. Well, there are two things I really like about this art  
23 for prior art in this case. First of all, it's clearly about  
24 DSL. You can see the title says, Device for sending,  
25 receiving, digital data, capable of processing different bit

1 rates, and in particular in a VDSL environment. So this is a  
2 VDSL case, seems very appropriate.

3 The second thing I really like about Mazzoni is it's just  
4 an excellent disclosure of using shared memory for  
5 interleaving and deinterleaving.

6 Q. What is the date on the Mazzoni reference?

7 A. The date is July 11th of 2001.

8 Q. And remind us again, what was the date of the '048  
9 Patent?

10 A. October 12th of 2004.

11 Q. What was the second reference that you relied on in your  
12 invalidity analysis?

13 A. VDSL1.

14 Q. And what was the date of VDSL1?

15 A. June of 2004.

16 Q. And, again, was that before the '048 Patent?

17 A. Yes. The '048 Patent was in October of 2004.

18 Q. And, finally, we mentioned LB-31. Was that also before  
19 the '048 Patent?

20 A. Yes, it was. It was also in June of 2004.

21 Q. Why would a person of skill in the art prior to the '048  
22 Patent have been motivated to combine the Mazzoni reference  
23 with VDSL1?

24 A. Okay. So the way that we do this type of a  
25 motivation-to-combine analysis is that we need to consider

1 what would a person of ordinary skill in the art have thought  
2 about combining the pieces of art at the time of the  
3 invention.

4 So the time of the invention is October of 2004, and I am  
5 a person of ordinary skill in the art. Maybe I'm somebody at  
6 Siemens looking at this patent and saying, oh, maybe I want to  
7 build a transceiver using the Mazzoni idea of sharing  
8 interleaver memory and I want to do it for VDSL, because  
9 that's what the patent says to do, to do it for VDSL.

10 So as we've heard throughout this trial, if I want to  
11 build a transceiver for VDSL and actually sell it, I'm going  
12 to need to build it according to the standard. What standard  
13 is available to me as a transceiver builder in October of  
14 2004? It's the just-released standard VDSL1 that was  
15 available since June of 2004.

16 So this is a very easy way to understand that there was a  
17 strong motivation to combine this patent, which is about  
18 building a VDSL transceiver, with the standard that it would  
19 have to comply to if I were going to sell it.

20 Q. And does the Mazzoni reference tell us that right there  
21 in the title?

22 A. Yes. As I said, it says, This is a patent about a device  
23 for sending and receiving digital data specifically for a VDSL  
24 environment.

25 Q. Is there anything else about the disclosures of Mazzoni

1 and VDSL1 that would indicate that you should combine the two?

2 A. Yes. You know, it seems like Simone Mazzoni and Helene  
3 Came knew a lot about what was going on in VDSL1 because they  
4 describe lots of things exactly the same way as they're  
5 described in VDSL1. But one thing in particular that is  
6 exactly the same and important for us is they both -- both  
7 VDSL1 and Mazzoni, they do give a specific implementation of  
8 the interleaver and the deinterleaver and they give exactly  
9 the same implementation of the interleaver and the  
10 deinterleaver.

11 And that's going to be important for us because we're  
12 going to talk about exchanging amounts of memory, and that  
13 really only makes sense if everybody is implementing it the  
14 same way.

15 So here in this picture you can see on the left is the  
16 VDSL1 figure describing the interleaver and the deinterleaver,  
17 and in VDSL1 they just show it in one figure with the channel  
18 in between. And I just want to explain to you the triangle on  
19 the left that's smaller at the top, that's the interleaver.

20 Q. Doctor Wesel, what specifically is the image in Mazzoni  
21 describing with respect to the implementation of the  
22 interleaver?

23 A. It's the memory.

24 Q. Thank you.

25 Turning next to claim 5, what are the key aspects of this

1 claim?

2 A. Well, the key aspects of the claim are the message during  
3 initialization specifying a number of bytes that you can see  
4 at the top of 5[B]. And then along with that message, there's  
5 another part that's sort of part of the message part down  
6 there in 5[D], the last two lines. When we allocate bytes to  
7 the shared memory, we can't exceed that maximum number of  
8 bytes specified in the message. Okay? So there's the message  
9 part to think about.

10 And the other big key idea in claim 5 is the idea of  
11 using a shared memory for interleaving and deinterleaving.

12 Q. And, Doctor Wesel, is claim 5 the only claim in the '048  
13 Patent?

14 A. No. The '048 Patent has eight claims.

15 Q. So we're only discussing one of the eight claims today.  
16 Is that right?

17 A. That's correct.

18 Q. Turning to the first implementation here, it says, a  
19 system that allocates shared memory comprising. Are there any  
20 claim constructions that are relevant to this term?

21 A. Yes, there is a claim construction.

22 Q. And what is that construction?

23 A. So shared memory was construed by the Court to mean  
24 common memory used by at least two functions where a portion  
25 of the memory can be used by either one of the functions.



1 Q. And does Mazzoni disclose this concept of a shared  
2 memory?

3 A. Yes, it does.

4 Q. Could you please explain how?

5 A. Yes. So in the abstract, it gets right out of the gate,  
6 because that's really the focus of this patent, it says in the  
7 highlighted portion, "The memory," and that's our common  
8 memory space, "may have a first memory space assigned to the  
9 interleaver." So that's a portion of the shared memory  
10 assigned that's for one function. "And a second memory space  
11 assigned to the deinterleaver." And so that's the second  
12 function that's using that common memory.

13 Q. And how does figure 6 further describe this disclosure of  
14 a shared memory?

15 A. The shared memory is that green-and-red box that's called  
16 MM. And if we look at the highlighted text, it says the  
17 memory space of memory MM, that's our common memory, is  
18 divided into a first memory space ESM1, that's our green box,  
19 assigned to the interleaving means, so to the interleaver, and  
20 a second memory space ESM2, that's our red box, and that's  
21 assigned to the deinterleaving means.

22 So here we see in this figure the common memory that's  
23 used by two functions, an interleaver and a deinterleaver.

24 Q. And it appears to me that the memory here is split up  
25 50/50. Is it always split 50/50?

1 A. No, it's not. In fact, you would split it 50/50 when  
2 you're using a symmetric connection that has equal data rates  
3 for both uplink and downlink. That's something that VDSL  
4 introduced. Earlier ADSL didn't do that.

5 But VDSL can also do asymmetric communications, which you  
6 might be familiar with, where there's more information flowing  
7 in the downstream. And when that's happening -- I'm actually  
8 interested in talking about the central office transceiver  
9 today. When that happens, you're going to use more memory for  
10 the interleaver.

11 And that's important for our claim construction because  
12 when we use more memory for the interleaver in the green box  
13 gets bigger than the red box, then we know that a portion of  
14 the memory can be used sometimes for both interleaving or  
15 deinterleaving.

16 Q. So if I moved the line in figure 6 to here, that would be  
17 a possibility within this disclosure. Is that correct?

18 A. Absolutely.

19 MR. HURT: Objection, leading.

20 MS. WROBLEWSKI: I'll withdraw the question.

21 THE COURT: I'll sustain. Either restate it or move  
22 on.

23 Q. (BY MS. WROBLEWSKI) How does Mazzoni describe the  
24 ability to reconfigure the memory?

25 A. So Mazzoni makes it clear that its memory allocations are

1 dynamic, that they can change, and here are a couple of  
2 highlighted texts that make that clear.

3 So the first one here, it talks about that -- it says  
4 that -- let's start at the bottom -- there are three  
5 highlighted lines. We start at this -- the line where the  
6 whole line at the top is yellow, memory capacity. Memory  
7 capacity of the interleaving and deinterleaving--and now let's  
8 go back up to the top--is adaptable. So that means changeable  
9 or dynamic.

10 So -- and then the second highlighted part of the text  
11 says that the memory shared between the interleaving means and  
12 deinterleaving means, the memory allocation can be  
13 reconfigured. Well, reconfigured means configured again. So  
14 it means that it can change. It's not fixed.

15 Q. And, Doctor Wesel, do you have any question that the  
16 first limitation of the asserted claim 5 was known before the  
17 filing of the '048 Patent?

18 A. No, there's no question about that.

19 Q. So can I add a checkmark next to that limitation?

20 A. Yes.

21 Q. Turning to element 5A, this term is a transceiver that is  
22 capable of. Are there any claim constructions that are  
23 relevant to the term 'transceiver'?

24 A. Yes. Right here it is. A transceiver was construed by  
25 the Court to be, "A communication device capable of

1 transmitting and receiving data." The word 'transmitter' is  
2 just a mushing together of transmitter and receiver. Anyway,  
3 "A communication device capable of transmitting and receiving  
4 data wherein"--so here's one more thing we need to check--"the  
5 transmitter portion and the receiver portion share at least  
6 some common circuitry."

7 Q. And does Mazzoni describe element 5A?

8 A. Yes, it does.

9 Q. And how?

10 A. Okay. So there are two things we need to check. The  
11 first thing is, does it both send and receive, does it both  
12 transmit and receive. And we can see here this figure is  
13 showing both TO--that's transceiver at the office--and  
14 TU--that's transceiver at the user site--and it calls those  
15 devices send receive devices.

16 So that gives us the first part of the claim  
17 construction, both TO and TU, transmit and receive.

18 Q. And does this transceiver also have a common circuitry?

19 A. It does. And we've actually already talked about an  
20 excellent example of the common circuitry that we have. We  
21 know that the transceivers described in this patent have  
22 shared memory, and that means that the memory which is in a  
23 circuit, the memory is implemented by a circuit, and that  
24 memory is shared by both the transmitter function of  
25 interleaving and the receiver function of deinterleaving.

1           So there's no question that the transceivers of Mazzoni  
2       have a portion of the circuitry that's shared.

3           THE COURT: Let me interrupt just a minute.

4           Doctor Wesel, her question was, And does this transceiver  
5       also have a common circuitry. And you said it does. That was  
6       a complete answer.

7           And then you went on to explain how it does. She didn't  
8       ask you to explain how it does. You volunteered that. It's  
9       her job to ask the questions. And if she asks the right  
10      questions in the right way, it's an effective examination, and  
11      if she doesn't, it's not. But it's not the witness' job to  
12      volunteer explanations that aren't called for.

13          So limit your answers to the questions asked, and I'm  
14      sure counsel will follow up with as many questions as  
15      necessary to develop any of these concepts further as she  
16      believes they should be developed. Is that understood?

17          THE WITNESS: I'm sorry, Your Honor.

18          THE COURT: This may not be an environment that  
19      you're used to. I don't know what your experience as a  
20      witness has been, but I'm trying to make it clear to you that  
21      there are certain protocols and procedures and rules that we  
22      follow in the United States District Court, and they apply to  
23      all the witnesses in the same way. And I just want to make  
24      sure that your testimony comports with those rules. So I'm  
25      trying to make that as clear as I can.

1           One of the premises is you should be responsive to the  
2           questions asked, fully answer them, but you should not go  
3           beyond the scope of what the question calls for. And if there  
4           is additional explanation or development needed in the view of  
5           counsel, because, again, counsel drives the examination, not  
6           the witness, if there's additional development that's  
7           necessary or appropriate, I assure you she'll ask the  
8           questions for you to give the fuller answer if she believes  
9           the fuller answer is necessary.

10           So that's how we need to proceed. And if you'll try to  
11           do that as we go forward, I'll appreciate it. Okay?

12           THE WITNESS: Absolutely, Your Honor.

13           THE COURT: All right. Thank you very much, Doctor  
14           Wesel.

15           Let's please continue.

16           MS. WROBLEWSKI: Thank you, Your Honor.

17           Q. (BY MS. WROBLEWSKI) So, Doctor Wesel, was element 5A  
18           well-known before the filing of the '048 Patent?

19           A. Yes, it was.

20           Q. Turning next to element 5B, can you explain briefly what  
21           is meant by the language of 5B?

22           A. So the question is, what is meant by the language of 5B.  
23           So 5B requires a message, one message, and it's during  
24           initialization, so when you're setting up the modem. And that  
25           message specifies a maximum number of bytes of memory, and

1     that memory is -- a maximum amount of memory that is available  
2     to be allocated to a deinterleaver.

3     Q.    And was this concept known in the prior art before the  
4     filing of the '048 Patent?

5     A.    Yes, it was.

6     Q.    And where?  Where within the prior art have you seen  
7     this?

8     A.    Well, again, it's this R message 2 in VDSL1.

9     Q.    And in addition to the disclosure in VDSL1, have you seen  
10    this elsewhere in prior art that we've discussed?

11    A.    Yes.  As we discussed earlier today, it is also disclosed  
12    as one of the options for communicating about the interleaver  
13    in the Texas Instruments proposal.

14    Q.    So is there any question, Doctor Wesel, that element 5B  
15    was known prior to the filing of the '048 Patent?

16    A.    No, there's no question in my mind about that.

17    Q.    Turning next to element 5C, could you please briefly  
18    describe what is meant by 5C in the order of the claims here?

19    A.    Sure.  So what is meant by the element 5C.  So the main  
20    point here is that the device that received the message, which  
21    is in my case I'm thinking about the central office  
22    transceiver, has to determine how much memory it wants to  
23    allocate to its deinterleaver.

24    Q.    And what does determine mean?

25    A.    Figure it out, compute it, you know, determine that

1 value. So count -- I guess in terms of the picture we saw  
2 earlier, count the number of boxes.

3 Q. And how does Mazzoni describe determining an amount of  
4 memory?

5 A. Well, in this -- in the top box here, it talks about how  
6 the sizes of the respective memories are defined in terms of a  
7 couple of parameters. And then the bottom box, there are some  
8 equations, one for the interleaver and one for the  
9 deinterleaver, to determine that amount of memory. And  
10 basically those equations, all they do is figure out how many  
11 boxes would be in the triangle for the interleaver and the  
12 deinterleaver.

13 Q. And the second part of the claim, I see the words Reed  
14 Solomon coded. Does Mazzoni describe the technique of using  
15 Reed Solomon coding?

16 A. Yes, it does.

17 Q. And can you please describe how?

18 A. Sure. We have two excerpts from Mazzoni that we're  
19 looking at here. In the top excerpt, it says that the  
20 transmitted data may be protected by Reed Solomon coding. And  
21 then in the bottom box, it makes it clear that we are going to  
22 encode bytes by Reed Solomon coding before we interleave them,  
23 and that after we deinterleave bytes when we're receiving  
24 data, we are going to decode them using a Reed Solomon  
25 decoder.



1 Q. So is there any -- so is element 5C known in the prior  
2 art prior to filing of the '048 Patent?

3 A. Yes, it is.

4 Q. Turning to the next two elements, it's a lot of words  
5 here, but could you briefly summarize what is intended by  
6 these claims or by these elements?

7 A. Sure. You can think of the -- sort of chronologically  
8 what is going on. From the previous element, we have  
9 determined how many bytes we're going to use for the  
10 deinterleaver triangle, and we did a similar thing for the  
11 interleaver we figured out how many bytes we need.

12 So these two claims, claims D and E, are about allocating  
13 the memory. So it's after you figured out how much memory  
14 you're going to use for interleaving and deinterleaving, you  
15 go ahead and set up that box and make the green portion for  
16 the interleaver big enough for the boxes you needed for that  
17 triangle and you make the red portion on -- I may have  
18 confused the colors -- you make the other portion big enough  
19 for the number of boxes that you need for the other device,  
20 deinterleaver, one for the interleaver and the other for the  
21 deinterleaver.

22 Q. And the second half of element 5D reads, "Wherein the  
23 allocated memory for the deinterleaver does not exceed the  
24 maximum number of bytes specified in the message." Was that  
25 well known in the art prior to the '048 Patent?

1 A. Yes. And in our combination, you know, we're building  
2 the device to be compliant with VDSL1. So it gets a message  
3 that tells it to use -- you know, that this is the maximum  
4 amount of memory in bytes that you can use for the  
5 deinterleaver. And so that's what the device will do. It  
6 won't go beyond that amount.

7 Q. So were elements 5D and 5E known prior to the filing of  
8 the '048 Patent?

9 A. Yes, they were.

10 Q. And turning to our last element, could you please  
11 describe what is meant by element 5F?

12 A. Sure. So as I said, you know, we've been going through  
13 it chronologically. We've been on this journey. We  
14 determined the amount of memory for the interleaver, we  
15 allocated -- and for the deinterleaver. We allocated the  
16 memory for the deinterleaver and the interleaver. Now it's  
17 time to ahead and do the interleaving and the deinterleaving.

18 And so claim 5F is basically -- it's a lot of words, but  
19 it says, go ahead, deinterleave the Reed Solomon bytes that  
20 you've received and interleave the Reed Solomon bytes that  
21 you're going to transmit.

22 Q. And what does the second half of the claim, "Wherein the  
23 shared memory allocated to the deinterleaver is used at the  
24 same time as the shared memory allocated to the interleaver,"  
25 where is that portion of the element disclosed?

1 A. Well, Mazzoni specifically describes using a dual port  
2 memory for the shared memory, and that means that there is one  
3 port for the interleaver and another port for the  
4 deinterleaver so that the deinterleaver can be reading and  
5 writing Reed Solomon bytes into that shared memory at exactly  
6 the same time that the interleaver can be reading and writing  
7 bytes from that shared memory.

8 Q. Thank you, Doctor Wesel. So was element 5F also  
9 disclosed in the prior art?

10 A. Yes, it was.

11 Q. Can you please sum up your opinions with respect to the  
12 validity of claim 5 of the '048 Patent?

13 A. Sure. So, remember, we were trying to discover whether  
14 or not the prior art showed us that message specifying a  
15 maximum amount of memory in bytes, and whether or not the  
16 prior art disclosed that shared memory for interleaving and  
17 deinterleaving. And what we found is that Mazzoni clearly  
18 described shared memory for interleaving and deinterleaving,  
19 and VDSL1 has that message specifying a maximum amount of  
20 memory that you're going to allocate in bytes.

21 And, therefore, all of the claim elements of claim 5 of  
22 the '048 Patent were old and well-known, and claim 5 of the  
23 '048 Patent is invalid.

24 Q. And, Doctor Wesel, did the Patent Office have Mazzoni or  
25 LB-31 or VDSL1 when considering the '048 application?

1 A. No, they did not.

2 Q. And in your opinion, would they have granted the  
3 application had they had those references?

4 A. No, it wouldn't have been granted.

5 Q. Thank you, Doctor Wesel.

6 MS. WROBLEWSKI: No further questions. I pass the  
7 witness.

8 THE COURT: All right. Cross-examination by the  
9 Plaintiff.

10 MR. HURT: Yes, Your Honor. May we have a moment to  
11 pass out the binders?

12 THE COURT: You may distribute binders, counsel.

13 (Pause in proceedings.)

14 MR. HURT: May I approach, Your Honor?

15 THE COURT: You may. All right.

16 Mr. Hurt, you may proceed with cross-examination when  
17 you're ready.

18 MR. HURT: Thank you, Your Honor.

19 CROSS EXAMINATION

20 BY MR. HURT:

21 Q. Good morning, Doctor Wesel.

22 A. Good morning.

23 Q. And you and I have met before, haven't we?

24 A. We met over Zoom once, yes.

25 Q. I took your deposition?

1 A. That's correct.

2 Q. I assume I was professional to you during that?

3 A. Absolutely.

4 Q. Okay. On direct examination -- I want to ask you a few  
5 questions about the standardization process that you mentioned  
6 on direct.

7 MR. HURT: And so, Mr. Diaz, if you could pull the  
8 cross exhibit demonstrative up.

9 Q. (BY MR. HURT) This, Doctor Wesel, was I believe a few  
10 times in your presentation. Is that right here?

11 A. Yes, that's correct.

12 Q. And you were here in the courtroom yesterday, I assume,  
13 when Doctor Ransom told the jury that the TI proposal had not  
14 been incorporated into VDSL2. Right?

15 A. Yes, I was here for that.

16 Q. Okay. And I assume you disagree with him based on your  
17 testimony today. Is that right?

18 A. Yes, that's correct.

19 Q. Okay. And you understand that Doctor Ransom has been to  
20 ITU meetings. Right?

21 A. I do, yes.

22 Q. And including for DSL. Right?

23 A. Yes, for ISDN, I think he said. Yes.

24 Q. I believe he also said ADSL as well, didn't he?

25 A. I don't recall.

1 Q. He talked about how he was the head of -- the CTO of a  
2 company called Alcatel. Do you remember that?

3 A. Yes.

4 Q. And they are one of the largest providers of DSL  
5 equipment, aren't they?

6 A. Yes, they are.

7 Q. And, in fact, when he was the CTO of Alcatel, he -- the  
8 group at Alcatel that was in the ITU reported to him. Do you  
9 remember that testimony?

10 A. Yeah, I remember that.

11 Q. And so he -- he was in the room, the same types of  
12 meetings that Mr. Tzannes was in when we saw that big room in  
13 opening, wasn't he?

14 A. Yeah.

15 Q. But, in fact, sir, you've never been to an ITU meeting,  
16 have you?

17 A. You're right. I have never been to an ITU meeting.

18 Q. You've never been to a DSL standards meeting, have you?

19 A. I don't think so. I went to one standards meeting. I  
20 still can't remember what it was. It could have been DSL.

21 Q. Well, I believe the testimony you gave at your deposition  
22 was you went to one standards meeting a long time ago, they  
23 were related I believe to IEEE 802.11. Is that right?

24 A. I can't remember what that meeting was about, but it  
25 could very likely have been about 802.11 because I was

1 involved in designing some codes for 802.11.

2 Q. But sitting here today, you're not telling this jury that  
3 you've ever been to a DSL meeting, are you?

4 A. No, I'm not.

5 Q. Okay.

6 A. Probably never been to a DSL meeting.

7 Q. But you are telling this jury that they need to believe  
8 you over Doctor Ransom. Right?

9 A. Yes.

10 Q. Okay. And in your view, is it still your position then,  
11 Doctor Wesel, that VDSL2 teaches a time delay?

12 A. VDSL2 communicates -- I'm going to answer this question  
13 carefully. VDSL2 communicates about the interleaver using  
14 delay in octets.

15 MR. HURT: Objection, Your Honor, move to strike.  
16 Non-responsive.

17 THE COURT: Overruled.

18 Q. (BY MR. HURT) Is that delay you mentioned, Doctor Wesel,  
19 a time delay?

20 A. Well, if -- in LB-31 there is an equation that shows the  
21 relationship between delay and octets and delay and time. So  
22 it's in octets, so they're units. But it's like whether I  
23 described what something is in inches or feet, you know,  
24 they're different units, but they're both talking about  
25 basically the same thing.

1 Q. So it's your opinion then that VDSL2 teaches a time  
2 delay. Do I have that right?

3 A. It teaches -- look, it's really clear what it does do.  
4 It communicates delay in octets. There's an equation in LB-31  
5 that talks about how you would compute the octets for -- from  
6 the delay in milliseconds.

7 I'm not going to testify that octets is milliseconds.  
8 They are different units. So I guess is it time? Yeah. I  
9 mean, would I know the time from the delay in octets, yes. Is  
10 octets milliseconds, no.

11 Q. I'm going to ask you one more time, sir. In VDSL2 is it  
12 your opinion that that is teaching time delay?

13 A. Yes.

14 Q. Okay. And you mentioned there is an equation in VDSL2  
15 for the -- the message. Right?

16 A. I said there's an equation in LB-31. There are a lot of  
17 equations in VDSL2.

18 Q. I assume you are familiar with VDSL2?

19 A. Yes.

20 Q. Okay. And you understand that the field we're talking  
21 about in VDSL2 is called max\_delay\_octet DS0. Right?

22 A. Yes.

23 Q. And you mentioned on direct that that is defined I  
24 believe in 6.2.8 in the VDSL2 standard. Right?

25 A. You know, I thought I said 6.8, but it could be 6.2.8.



1 But if you go -- oh, sorry. I'm just supposed to answer the  
2 question. Sorry. What was your question again? I'm sorry.

3 Q. So on the screen here is from VDSL2 --

4 A. Ahh.

5 Q. -- which is Exhibit 34.

6 A. Yes.

7 Q. And it says that max\_delay\_octet is the maximum value of  
8 delay\_octet DS0. Do you see that?

9 A. Yes.

10 Q. And it's defined in clause 6.2.8. Right?

11 A. Yes.

12 Q. And 6.2.8, you have an equation for delay\_octet, don't  
13 you?

14 A. Yeah, there's an equation for delay\_octets.

15 Q. And that equation is I minus 1 D minus 1. Right?

16 A. Yes, absolutely.

17 Q. And as I believe you testified a minute ago, the units  
18 are not milliseconds. True?

19 A. Yeah.

20 Q. And in this equation, isn't it the case that the units  
21 are bytes? Right?

22 A. Octets, yeah.

23 Q. And octet just means eight bits. Right?

24 A. Sure.

25 Q. And that's also known as a byte?

1 A. Yeah.

2 Q. And VDSL2 tells you what these values I and D refer to,  
3 doesn't it?

4 A. Yes, absolutely.

5 Q. And it says that I is interleaver block length. Right?

6 A. Yes.

7 Q. And that is in number of, I think, what, bytes per  
8 codeword? Is that right or codeword -- I'm sorry. Strike  
9 that.

10 That value is number of bytes in a codeword. True?

11 A. Well, it's related to the -- there's another parameter Q.  
12 So it's related to the number of bytes in a Reed Solomon  
13 codeword.

14 Q. Okay. And D is interleaver depth. Right?

15 A. Yes.

16 Q. And just so the jury is clear, neither this variable I  
17 nor this variable D are in a unit of time. True?

18 A. That's correct.

19 Q. Okay. And -- but it's still your opinion, I just want to  
20 make sure I have it right, that this equation I minus 1 D  
21 minus 1 in your view, that's talking about time delay. Right?

22 A. Well, in my view there's a relation between that delay  
23 and -- or that number of bytes and how much time it takes for  
24 them to be communicated over the channel.

25 Q. And so in your view, this is -- this is specifying time

1 delay and not memory. Right?

2 A. Definitely not memory. It's specifying delay, not  
3 memory.

4 Q. Well, I'm going to move that equation here to the right  
5 and let's take a look at VDSL1. Okay? You'd agree with  
6 me --

7 A. Ahh, yes. Okay. Yeah. Sure. Go ahead.

8 Q. You're familiar are VDSL1, aren't you, sir?

9 A. Yes.

10 Q. Okay. And in VDSL1, you've called that memory. True?

11 A. Yes.

12 Q. And I believe you said to the jury that, in your view,  
13 that maximal interleaver depth meets the limitation of  
14 transmitting an amount of memory. Right?

15 A. That's right. I did.

16 Q. And what you pointed to is this field right here, maximum  
17 interleaver memory. Right?

18 A. Yes.

19 Q. But what you didn't show the jury is there's a note 1 in  
20 this field. Right?

21 A. Yes. Let's take a look at the note. Sorry.

22 Q. Note 1 says, the interleaver memory is computed as M  
23 times I times I minus 1.

24 A. That's right.

25 Q. Do you see that?

1 A. Yes. That's right.

2 Q. And you know what M times I is. Right?

3 A. Yes.

4 Q. It was on one of your slides earlier. I believe it was  
5 your slide 15 talking about interleaver memory. True?

6 A. That's correct, yes.

7 Q. In fact, the VDSL1 standard tells you that M times I is D  
8 minus 1. Right?

9 A. Yes.

10 Q. In fact, it tells you that right here in section 8.4.2  
11 that M times I is D minus 1.

12 A. Yes, that's correct.

13 Q. And if you go back to high school algebra, we can replace  
14 M times I with D minus 1, can't we?

15 A. You are absolutely right, yes.

16 Q. So you would agree with me then that the equation for  
17 what you agree is memory is D minus 1 times I minus 1. Right?

18 A. Yes. That's what it says in that note.

19 Q. And you would also agree with me, going back to when we  
20 were back in school, that I can flip those around and put the  
21 I minus 1 first and the D minus 1 second. True?

22 A. No problem. You can do that, yes.

23 Q. So for VDSL1, what you call memory is I minus 1 D minus  
24 1. Right?

25 A. Yes.

1 Q. And, in fact, this whole case we've heard about how VDSL1  
2 is memory and VDSL2 is delay, haven't we?

3 A. Yes, absolutely.

4 Q. And how this field maximal interleaver memory is memory  
5 and how max\_delay\_octet is delay. True?

6 A. That's true, yes.

7 Q. And the equation for memory is I minus 1 times D minus 1,  
8 isn't it, sir?

9 A. You're right about everything you've said.

10 Q. And isn't it also true that the equation from what --  
11 what you and CommScope have called delay is also I minus 1  
12 time D minus 1. Right?

13 A. Yes, sir.

14 Q. Okay. I want to turn to your invalidity opinions. You  
15 understand, don't you, sir, that the jury's going to be  
16 instructed on invalidity by the Court? Right? You're aware  
17 of that fact?

18 A. Sure.

19 Q. And you've been an expert in a number of cases, haven't  
20 you?

21 A. I have been, yes.

22 Q. You're familiar with the standards for invalidity?

23 A. I believe so, yes.

24 Q. And one thing I didn't hear you mention on direct is that  
25 invalidity requires clear and convincing evidence, doesn't it?

1 A. Sure. Wait. Actually I -- I think so. I'll rely on  
2 you.

3 Q. Okay. And that's -- that's -- that's a higher standard  
4 than just the preponderance standard that's required for  
5 infringement. True?

6 A. That's true.

7 Q. And so it can't just be that invalidity is shown by just  
8 a little bit. It's got to be quite a bit. Right?

9 A. It has to be clear and convincing evidence.

10 Q. Okay. And you would agree with me -- well, strike that.

11 There were two references you mentioned in addition to  
12 Mazzoni--VDSL1 and LB-031. Right?

13 A. Correct.

14 Q. And you'd agree with me that those two references don't  
15 disclose the shared memory of the claims. True?

16 A. That's correct. They don't explicitly disclose the  
17 shared memory.

18 Q. And that's a requirement of claim 5--right?--that it has  
19 to have shared memory?

20 A. Yeah.

21 Q. And, in fact, VDSL2, as we saw yesterday with Doctor  
22 Ransom, actually uses the words 'shared memory', doesn't it?

23 A. It does, yes.

24 Q. And that's language that isn't in VDSL1 or LB-031. True?

25 A. That's correct.

1 Q. Okay. And to get there, you relied on a reference called  
2 Mazzoni. True? Strike that and ask a -- let me strike that.

3 For the other elements that include shared memory, you  
4 relied on a reference called Mazzoni, didn't you?

5 A. Yes, I did.

6 Q. But you didn't tell the jury that Mazzoni describes a  
7 message. Right?

8 A. No, I didn't talk about that.

9 Q. Okay. And so to get the message, you got to add VDSL1 or  
10 LB-031 in your view. Right?

11 A. Yes. My analysis is the combination of those two -- of  
12 Mazzoni with VDSL1, yes.

13 Q. So Mazzoni doesn't have the message. True?

14 A. I didn't talk about the message, yes.

15 Q. LB-031 VDSL2 don't have shared memory. Right?

16 A. They don't explicitly disclose shared memory. That's  
17 right.

18 Q. Okay. And you mentioned on each claim element that the  
19 prior -- it was known before the patent that each claim  
20 element was met. Right?

21 A. That's correct.

22 Q. But you understand, don't you, sir, that for obviousness  
23 analysis, you can't just show that each element was known in  
24 the prior art. True?

25 A. Can you -- I don't know where you're going. Can you help

1 me a little bit?

2 Q. You understand, sir, from your work as an expert witness  
3 to show obviousness, it's not enough to just show that each  
4 claim element was known. True?

5 A. I know you're trying to get to something, but I don't  
6 understand. If I show that all the claim elements are known,  
7 then I think I've done a good job.

8 Q. You also have to show motivation to combine, don't you?

9 A. Ahh. Okay. Yes, I agree you have to show motivation to  
10 combine.

11 Q. You can't just go into the grocery store with the recipe  
12 and pick out the ingredients. Right?

13 A. I agree you have to show motivation to combine.

14 Q. You got to know at the time of the invention someone,  
15 without the patent, without the benefit of hindsight, would  
16 have put these two together. Right?

17 A. I agree you have to show a motivation to combine.

18 Q. And what you pointed to and explained to the jury was an  
19 engineer at Siemens would have been looking at Mazzoni. True?

20 A. I did say that, yes.

21 Q. And then for messaging, would have looked to something  
22 like VDSL1 I believe is what you specifically said. Right?

23 A. Yes.

24 Q. And this would have been in the 2004 time period. Right?

25 A. Yes.



1 Q. It has to be because that's the date we're talking about  
2 for the patent. Right?

3 A. That's right.

4 Q. You understand, don't you, Doctor Wesel, that VDSL1 was  
5 never commercialized?

6 A. Yes, I know. Yeah, I know, yeah. Well, I agree with  
7 that. We heard that testimony from Doctor Ransom.

8 Q. Right. We heard it yesterday from the -- I think an  
9 expert on y'all's side that has DSL experience. True?

10 A. We heard it yesterday from Doctor Ransom.

11 Q. And I think we even heard it in opening statement when  
12 CommScope's attorney was telling the jury the difference  
13 between VDSL1 and VDSL2, didn't we?

14 A. I don't recall that testimony, but I believe you.

15 Q. But you know for -- but you know, sir, that VDSL1 was  
16 never commercialized.

17 A. I agree.

18 Q. But it's still your testimony that an engineer sitting at  
19 Siemens would have combined these two references to make a  
20 product that couldn't work with anything. Right?

21 A. Well, right. At that time, that was the standard. So  
22 yeah, it didn't work out. It's better -- well, I should shut  
23 up.

24 Q. Okay. I mean, you can't identify a single product, can  
25 you, Doctor Ransom [sic], that implemented VDSL1?

1 A. I'm Doctor Wesel.

2 Q. I'm sorry.

3 A. And you're correct. I cannot identify a product that  
4 uses VDSL1.

5 Q. I apologize, sir. I didn't mean to mix up your name.

6 A. Don't worry about it.

7 Q. I'm going to ask you a few questions about Mazzoni,  
8 Doctor Wesel. Is that all right?

9 A. Sure.

10 Q. Okay. Mazzoni describes a series of services, asymmetric  
11 and symmetric services. Right?

12 A. Yes, that's correct.

13 Q. And it has those interleaver parameters set for each  
14 service. True?

15 A. That's absolutely right, yes.

16 Q. And it describes in the patent that those parameters are  
17 stored in a table. Right?

18 A. Yes. That's an example in the patent.

19 Q. Right. And the patent explains that they're stored in  
20 the table and you can retrieve them by software. Right?

21 A. Yes.

22 Q. And make sure I had your testimony right. There's no  
23 message disclosed in Mazzoni that you presented to the jury  
24 that would show you the -- that's required to select those  
25 various parameters. True?

1 A. One way or another, the device needs to know which one of  
2 those services it's going to select.

3 Q. And it could do that by having a technician put in the  
4 software each of the services. True?

5 A. Well, we discussed this a lot at my deposition, and I  
6 think I explained then that the patent doesn't  
7 describe -- doesn't mention a technician. And it's my opinion  
8 that it's -- the -- the natural way to do this is with  
9 configuration messages like described in the standard in  
10 VDSL1.

11 There might be a way that -- that you could do it without  
12 those configuration messages, but it's not something I had  
13 ever thought about because, as we've heard throughout this  
14 trial, you got to have those configuration messages to learn  
15 the channel and pick the service based on the actual channel.

16 MR. HURT: Objection, Your Honor, non-responsive.  
17 Move to strike.

18 THE COURT: Sustained.

19 Q. (BY MR. HURT) Doctor Wesel, the fact is, you did not  
20 tell this jury that you needed a configuration message to  
21 select the parameters that are stored in that table. Isn't  
22 that right, sir?

23 A. No, I disagree.

24 Q. Okay. Well, you're not relying on Mazzoni for the  
25 message. Right?

1 A. That's correct. I'm relying on VDSL1 for that message.

2 Q. And if Mazzoni had a message, you would have showed it to  
3 the jury, wouldn't you?

4 A. I'm not sure -- I -- there's a difference between  
5 Mazzoni -- okay. There's a difference between Mazzoni having  
6 a message and needing a message. So I -- I didn't talk about  
7 Mazzoni showing a message. I did -- and I'm sorry. I think  
8 I'm talking too much. Can you restate your question so I can  
9 give you a good answer?

10 Q. You didn't tell the jury -- well, let me ask the  
11 question. If Mazzoni had the message in it, that's something  
12 you would have shown the jury. Right?

13 A. Not necessarily.

14 Q. Okay. So your testimony is that if Mazzoni had the  
15 message, you still may have still relied on some other  
16 reference. Right?

17 A. I'm just saying that, you know, I'm not sure what I  
18 would -- I presented one way of -- of discussing the art  
19 today, and that's what I presented.

20 Q. And what you presented was that an engineer would have  
21 combined Mazzoni with VDSL1. True?

22 A. Absolutely.

23 Q. And you know that VDSL1 was never commercialized, don't  
24 you, sir?

25 A. I agree.

1 Q. Okay.

2 MR. HURT: No further questions. Pass the witness.

3 THE COURT: Redirect by the Defendants?

4 Let's proceed with redirect.

5 REDIRECT EXAMINATION

6 BY MS. WROBLEWSKI:

7 Q. Doctor Wesel, TQ Delta's counsel asked you some questions  
8 about the DSL standard. Are you personally familiar with DSL  
9 standards?

10 A. Yes.

11 Q. And have you reviewed the standards in any amount of  
12 length?

13 A. Yes. I reviewed VDSL2 quite extensively and VDSL1.

14 Q. And could you just again remind us how does VDSL  
15 incorporate LB-31?

16 A. Well, we looked at that sentence in LB-31, and it says in  
17 that sentence that we looked at earlier in my testimony, for  
18 interoperability reasons we're going to exchange a message  
19 about the interleaver using delay in octets.

20 And then we looked at that sentence at the bottom of that  
21 page, and it said, the actual amount of memory used is  
22 implementation specific. So LB-31 was saying don't talk about  
23 memory; talk about delay, because the actual amount of memory  
24 we use is going to change. And if you go to section 6.2.8 of  
25 VDSL2, it says the same thing.

1 MS. WROBLEWSKI: So if we turn to VDSL2, which is  
2 Exhibit 34, Mr. Carrillo. And if we could go to page 24.

3 Q. (BY MS. WROBLEWSKI) And so at the bottom, we see section  
4 6.2.8.

5 MS. WROBLEWSKI: Could you blow that up, please?

6 Q. (BY MS. WROBLEWSKI) Doctor Wesel, where in here do you  
7 see the language that you were just describing that originated  
8 from LB-31?

9 A. Well, we need to scroll down a little bit to the next  
10 page.

11 Q. Okay.

12 MR. HURT: Your Honor, I'm going to object to this.  
13 He didn't answer counsel's question.

14 THE WITNESS: Can we go down a little bit further?

15 THE COURT: I guess I'm going to have to remind the  
16 witness that it's the lawyer that asks the questions. And if  
17 she says, where does this show this in this section, and she  
18 puts the wrong section up, your answer is, I don't see it  
19 there, not you need to move down you need to go to the next  
20 page. She's running the show, you're not, Doctor Wesel.  
21 So --

22 THE WITNESS: Yes, sir.

23 THE COURT: -- I've gone over this once as  
24 respectfully as I can because I want you to understand the  
25 procedure that we have follow.

1           If she doesn't get the answer she wants, she'll ask it  
2 another way, she'll show you something different. Counsel  
3 runs the examination. And if it's good, it's counsel's  
4 credit -- it's to counsel's credit, and if it's bad, it's  
5 counsel's fault. That's the way our system works.

6           Again, you're in a responsive posture. Please try to  
7 maintain that responsive posture. All right?

8           THE WITNESS: Yes, sir.

9           THE COURT: Okay. Counsel, restate your question or  
10 identify what you want the witness to look at it.

11          MS. WROBLEWSKI: Yes.

12          Q.     (BY MS. WROBLEWSKI) So in the paragraph that we have  
13 blown up here, how does it indicate how the memory is  
14 expressed?

15          A.     Okay. So the -- the memory is related to delay octets.  
16 And if we look at the last line here, it says, the minimum  
17 amount of memory required in a transceiver to meet this  
18 requirement is max\_delay\_octet over 2 octets. Those are the  
19 delay\_octets. So memory and delay are related.

20          But then the next sentence says, the actual amount of  
21 memory used is implementation specific. So that means that I  
22 can use more. It's not a maximum. I can use more than that  
23 amount of memory.

24          And it talks -- and this whole section is talking about  
25 the title of the section that is used to describe the

1 messages. It's not aggregate interleaver and deinterleaver  
2 memory. It's aggregate interleaver and deinterleaver delay,  
3 and so -- and delay is not memory.

4 Q. And, Doctor Wesel, is the language here, the actual  
5 amount of memory used is implementation specific, is that the  
6 same language that we see in LB-31?

7 A. Yes.

8 Q. Mr. Hurt asked you some questions, and he indicated that  
9 there are two equations that are the same as they relate to  
10 memory and time delay. Can you explain the difference there?

11 A. Yes. So the delay of the interleaver is definitely  $I$   
12 minus 1 times  $D$  minus 1. That's the delay.

13 The equations that describe the amount of memory that  
14 we're going to allocate in VDSL1 and in Mazzoni, the actual  
15 amount of memory that they allocate is  $I$  minus 1  $D$  minus 1  
16 over 2 for that specific triangular implementation. I'm going  
17 past your question.

18 Q. So do you believe that memory is equivalent to time  
19 delay?

20 A. No, because there are many other implementations of -- of  
21 the interleaver and deinterleaver. And when you move from  
22 VDSL1 to VDSL2, they actually then expanded the number of  $D$   
23 and  $I$  parameters to include parameters that don't work with  
24 that triangular implementation.

25 Q. Finally, Mr. Hurt asked you if a person would be



1 motivated to combine the VDSL1 standard with Mazzoni in view  
2 of the fact that VDSL1 was never commercialized, does that  
3 change your opinion with respect to whether someone of skill  
4 in the art would have been motivated to combine these two?

5 A. Not at all.

6 Q. Would a person of skill in the art have had access and  
7 understood what was disclosed in VDSL1?

8 A. Yes. And --

9 Q. And why is that?

10 A. Well, I mean, the thing is if you are a person of  
11 ordinary skill in the art in October of 2004, you don't know  
12 that VDSL1 isn't going to work. That's all you got. So, of  
13 course, they can't implement it with VDSL2 which is what is  
14 actually going to end up working because it doesn't exist yet.

15 So a person of ordinary skill of the art in October of  
16 2004 of course is going to look at the standard at that time,  
17 even though it didn't really work because they didn't want to  
18 use --

19 THE COURT: Doctor Wesel --

20 THE WITNESS: Oh.

21 THE COURT: -- slow down, slow down, please, Doctor  
22 Wesel. Go ahead and finish your answer if you haven't  
23 finished it, but please slow down.

24 THE WITNESS: Okay.

25 So the fact that VDSL1 was not eventually adopted because

1 they didn't want to have a specific implementation of the  
2 interleaver, they wanted to move to talking about the  
3 interleaver in terms of delay and let the manufacturers decide  
4 how to implement the interleaver themselves, and use a wider  
5 variety of IND parameters which would not admit that  
6 restrictive specific implementation in VDSL1, the fact that  
7 they made those changes later, that doesn't change the fact  
8 that a person of ordinary skill in the art looking at Mazzoni  
9 at the time that VDSL1 was the standard available would have  
10 combined those two pieces of art.

11 Q. (BY MS. WROBLEWSKI) Thank you, Doctor Wesel.

12 MS. WROBLEWSKI: No further questions. Pass the  
13 witness.

14 THE COURT: You pass the witness?

15 MS. WROBLEWSKI: I do.

16 THE COURT: All right. Is there additional  
17 cross-examination?

18 MR. HURT: Yes, Your Honor.

19 THE COURT: All right. Let's proceed with  
20 additional cross-examination.

21 RECROSS EXAMINATION

22 BY MR. HURT:

23 Q. Doctor Wesel, you would agree with me that memory and  
24 delay are at least related. Right?

25 A. Sure.

1 Q. So --

2 MR. HURT: Mr. Diaz, could we go to Exhibit 34 and  
3 the standard page 25, which I think is PDF page 33?

4 Q. (BY MR. HURT) And on redirect your counsel -- I believe  
5 your instruction blew up this part of the minimum amount of  
6 memory required is `max_delay_octet` over 2. Right?

7 A. Yes, that's correct.

8 Q. And so `max_delay_octet` memory, difference is you just  
9 divide the `max_delay_octet` by 2. Right?

10 A. Yes. The minimum amount of memory --

11 Q. Right.

12 A. -- can be computed as `max_delay_octet` over 2.

13 Q. And you pointed to the fact -- this next sentence that  
14 the actual amount of memory used is implementation specific.  
15 Right?

16 A. Yes, I did.

17 Q. And you're just here today to talk about invalidity.  
18 Right?

19 A. That's my understanding.

20 Q. And it seems like you're talking a lot about what I  
21 understand the non-infringement case to be, but you're here  
22 today just to talk about invalidity. True?

23 A. No. I am here today to talk about invalidity, but I  
24 disagree that I've been talking about infringement.

25 Q. Okay. Well, and the fact is, you don't know how

1 CommScope actually implements this. Right?

2 A. Oh, no, I do.

3 Q. Well, you didn't testify to it.

4 A. Unfortunately, yeah, I'm only here to talk about  
5 invalidity, yeah.

6 Q. And you saw Doctor Cooklev's source code analysis, didn't  
7 you?

8 A. I have.

9 Q. You saw the tests that he did. Right?

10 A. I did.

11 Q. Okay. And you're not here to talk about any of that.  
12 Right, sir?

13 A. No, I'm not.

14 Q. Okay.

15 MR. HURT: No further questions. Pass the witness.

16 THE COURT: Is there additional direct?

17 MS. WROBLEWSKI: There is not, Your Honor.

18 THE COURT: All right. You may step down, Doctor  
19 Wesel.

20 MS. WROBLEWSKI: Your Honor, may this witness be  
21 excused?

22 THE COURT: Doctor Wesel is excused. He's free to  
23 leave; he's free to stay.

24 All right. Do I understand Defendants you have two very  
25 short deposition witnesses next?

1 MR. STEVENS: That is correct, Your Honor.

2 THE COURT: Let's proceed with those. Please  
3 identify them.

4 MR. STEVENS: Defendants call Kevin Russell of Aware  
5 by deposition designation. It's 4 minutes and 28 seconds to  
6 CommScope and zero to TQ Delta.

7 THE COURT: Please proceed with this witness by  
8 deposition.

9 KEVIN RUSSELL, BY SWORN DEPOSITION,

10 Q. Good morning, Mr. Russell.

11 A. Good morning.

12 Q. Could you please state your name and address for the  
13 record?

14 A. Kevin Russell, 43 Sunset Road, Bedford, Massachusetts,  
15 01730.

16 Q. And do you understand today that you are under oath and  
17 you must answer my questions fully and truthfully?

18 A. Yes.

19 Q. And do you understand that you're testifying on behalf of  
20 Aware, Inc.?

21 A. Yes.

22 Q. You mentioned a bit earlier that you were the only  
23 person -- you were the only person still at Aware who worked  
24 on the DSL business. Was there a point at which Aware started  
25 to get out of the DSL business?

1 A. Yes. I think it was nine -- excuse me -- 2009 Aware sold  
2 its licensing business to Lantiq--and that's spelled  
3 L-A-N-T-I-Q--who was Aware's biggest DSL customer at the time.

4 Q. What was -- what was the reason for Aware getting out of  
5 the DSL business?

6 A. I would say generally that the, you know, the prospects  
7 for the business had -- were not as optimistic as it was back  
8 in the early 2000s.

9 Q. And why was that?

10 A. Why was that?

11 Q. Yes.

12 A. I think what you saw was a number of players decided that  
13 it wasn't a viable business opportunity for them. So in the  
14 early 2000s, I think there was a lot of fabulous semiconductor  
15 companies, a lot of investment in that. And then, as with  
16 many businesses, you know, the -- kind of the dust settles and  
17 a few people are left standing that are still engaged in it.

18 Q. Mr. Russell, I've handed you what has been marked as  
19 Exhibit 609. It's Bates numbered Aware002300 through -2302.  
20 Do you recognize this document?

21 A. I do.

22 Q. And what is this document?

23 A. This document is a cover letter, along with a patent  
24 statement and licensing declaration, that Aware submitted to  
25 the ITU on January 17th of 2003.

1 Q. Did you author this cover letter?

2 A. I did.

3 Q. And did you fill out the statements that are in the next  
4 page or so?

5 A. I did.

6 Q. Why did Aware submit this statement to the ITU?

7 A. I received an instruction from Marcos Tzannes that we  
8 should submit a statement with respect to this particular  
9 ITU-T recommendation.

10 Q. And what instruction did Mr. Tzannes give you?

11 A. He probably either called me or -- or emailed me and said  
12 we should file a patent licensing and declaration statement  
13 with respect to the following ITU recommendation, and I would  
14 then generate a cover letter and a patent statement and  
15 licensing declaration using the ITU form for the applicable  
16 recommendation.

17 Q. Was it Aware's policy to offer licenses on a  
18 non-discriminatory basis on reasonable terms and conditions  
19 for patents that related to standards?

20 A. To the best of my recollection, yes.

21 Q. And when Aware was looking for customers for its IP and  
22 designs, what industries was it looking in?

23 A. My understanding is they were looking at semiconductor  
24 companies that were interested in DSL.

25 Q. Did Aware target any companies who made DSL products,

1 like the modems?

2 A. Not that I'm aware of, but I was more on the back end of  
3 the process as opposed to the front end.

4 THE COURT: Does that complete this witness by  
5 deposition?

6 MR. STEVENS: It does, Your Honor.

7 THE COURT: Call your next deposition witness,  
8 please.

9 MR. STEVENS: Thank you. Via depo designations we  
10 call Bruce Bernstein, who is a licensing counsel for TQ Delta.  
11 It is 2 minutes and 48 seconds to CommScope and zero to TQ  
12 Delta.

13 THE COURT: Proceed with this witness by deposition,  
14 please.

15 MR. STEVENS: Thank you.

16 BRUCE BERNSTEIN, BY SWORN DEPOSITION,

17 Q. I apologize. You were -- you've been involved on behalf  
18 of TQ Delta with some discussions with Nokia. Is that  
19 correct?

20 A. Yes, I've had discussions with Nokia -- licensing  
21 discussions with Nokia regarding TQ Delta's patents.

22 Q. Okay. Do you recall that Nokia made presentations to you  
23 and the folks at TQ Delta about TQ Delta's patents being  
24 invalid?

25 A. I don't recall the specifics of Nokia's presentations



1 during those meetings. I do recall there being debate between  
2 the parties about whether certain patents were valid or  
3 invalid and whether certain patents were being infringed or  
4 not being infringed.

5 Q. So for the record, I would like to have marked as Exhibit  
6 4 a document bearing production number TQD\_TXNK00002735.

7 And what is this document?

8 A. It looks like it's a copy of a slide deck that was -- I  
9 assume it was presented to Nokia, it looks like, April 18th,  
10 2018, at a meeting in Washington, D.C.

11 Q. And you attended that meeting. Is that correct?

12 A. I did.

13 Q. Okay. I'd like for you to look at slide No. 4. It bears  
14 production number ending in 2738. Let me know when you're  
15 there.

16 A. I'm there.

17 Q. And on slide No. 4, you or TQ Delta presented the  
18 estimated royalties by product category. Is that correct?

19 A. I'm reading at the bottom of slide 4. There's a small  
20 table that does say estimated royalties by product category.

21 Q. And so TQ's estimated royalties for Nokia by product  
22 category from the second half of 2013 through 2020 was over  
23 \$256 million. Do I have that correct?

24 A. So, again, I can only talk about what this table says,  
25 and it says, at the bottom left-hand corner, it says, total

1 second half of 2013 to 2020, and it has a dollar amount,  
2 \$256,741,795.

3 Q. And just to make sure we're looking at it the same way,  
4 that's on the lower right, not the lower left.

5 A. I'm sorry.

6 Q. Correct?

7 A. You're correct. The lower right of that table.

8 THE COURT: Does that complete this witness by  
9 deposition?

10 MR. STEVENS: It does, Your Honor. And for the  
11 record, the witness was discussing what's been marked as Trial  
12 Exhibit 76.

13 THE COURT: All right. Thank you, counsel.

14 Ladies and gentlemen of the jury, we're going to take a  
15 short recess at this juncture. If you'll simply close your  
16 notebooks and leave them in your chairs, follow all my  
17 instructions, and we'll have you back here shortly to continue  
18 with the next Defense witness.

19 The jury's excused for recess at this time.

20 (Whereupon, the jury left the courtroom.)

21 THE COURT: The Court stands in recess.

22 (Brief recess.)

23 THE COURT: Be seated, please.

24 Defendants, are you prepared to call your next witness?

25 MR. DACUS: Yes, Your Honor.

1 THE COURT: All right. Let's bring in the jury,  
2 please.

3 (Whereupon, the jury entered the courtroom.)

4 THE COURT: Welcome back, ladies and gentlemen.  
5 Please be seated.

6 Defendants, call your next witness.

7 MR. DACUS: Thank you, Your Honor. At this time  
8 CommScope calls Dr. Stephen Becker.

9 THE COURT: All right. Doctor Becker, if you'll  
10 come forward and be sworn, please.

11 (Whereupon, the oath was administered by the Clerk.)

12 THE COURT: Please have a seat on the witness stand.  
13 Mr. Dacus, you may proceed with direct examination when  
14 you're ready.

15 MR. DACUS: Thank you, Your Honor.

16 STEPHEN BECKER, Ph.D., SWORN,  
17 having been duly sworn, testified under oath as follows:

18 DIRECT EXAMINATION

19 BY MR. DACUS:

20 Q. Good morning, Doctor Becker.

21 A. Good morning.

22 Q. Would you please introduce yourself to the jury, please,  
23 sir?

24 A. Yes. My name is Stephen Becker, and I live in Austin.

25 Q. And describe for the jury, sir, why you're here and what

1 your role is in this case.

2 A. So I am here as CommScope's damages expert on the patent  
3 infringement damages questions.

4 Q. And as part of your testimony today, have you prepared  
5 some slides to assist with the evidence that you're going to  
6 present to the jury?

7 A. I have.

8 Q. Before we get going, sir, would you give the jury an  
9 indication of what your educational background is?

10 A. Sure. I started out my educational career with a  
11 Bachelor of Science in engineering in computer science and  
12 electrical engineering from the University of Pennsylvania.

13 Then after working in industry for a number of years, I  
14 had moved back to Texas right after college and was in Austin,  
15 and I enrolled in the MBA program, a Master's in business  
16 administration with a concentration in finance, and I got that  
17 in 1986.

18 And then I worked for a number of years in Dallas and  
19 Austin and then went back to the University of Texas and got a  
20 Ph.D. in public policy in 1998 with a concentration in  
21 something called econometrics.

22 Q. Give the jury some indication where you worked.

23 A. Sure. The top two logos on this slide are, when I was  
24 working as an engineer fresh out of college, I went to work in  
25 the research and development labs for -- in Houston for a

1 company called Schlumberger. They're a big oil field services  
2 company.

3 And then I left Schlumberger and started a small computer  
4 systems company called The Solutions Group in Austin. So  
5 those two companies took me up to the point where I decided  
6 that I wanted to get an MBA. And when I came out of my MBA  
7 program, I went to work for Booz Allen and Hamilton, a large  
8 international management consulting firm. I was based in  
9 Dallas, but I worked all over the -- North America. I was  
10 hardly ever in Dallas.

11 When I left Booz Allen to go back and get my Ph.D., I  
12 hung out my own shingle in a consulting firm called Becker &  
13 Associates and basically kept doing economic valuation  
14 consulting while I was getting my Ph.D.

15 And then when I finished my Ph.D., I started the firm at  
16 the bottom there called Applied Economics Consulting Group,  
17 started that in Austin in 1999, and that's what I've been  
18 doing ever since then.

19 Q. What specifically do you do at Applied Economics?

20 A. So at Applied Economics, all of the work that I do is  
21 providing economic opinions about the value of things. A  
22 significant part of my work is economic analysis of the value  
23 of intellectual property and patents, and another big chunk of  
24 my work is valuing things like oil and gas assets and other  
25 types of business assets.

1 Q. Over the course of your career at Applied Economics,  
2 approximately how many times have you served as an economic  
3 expert?

4 A. I've been retained on I think over 350 different matters  
5 as an economic expert.

6 Q. And about how many of those specifically relate to patent  
7 damages?

8 A. It's about half of all my work is patent infringement  
9 damages related, so I'd say at least 150 matters.

10 Q. You, of course, understand that this case specifically  
11 relates to telecommunications and DSL technology specifically.  
12 Correct?

13 A. Yes.

14 Q. Do you have -- you mentioned your educational background.  
15 Do you have particular educational background that you think  
16 assists you in technical cases like this?

17 A. Well, I'm not -- in any of these matters I'm never  
18 offering a technical opinion, but I do find a significant  
19 percentage of the patent cases that I've worked on over the  
20 last 25 years are high-tech telecom cases and computer-related  
21 cases like this.

22 So when I'm reading the materials in the case,  
23 interacting with the technical experts, because I have that  
24 engineering degree, I find that it's very helpful in sort of  
25 understanding where the value is created because I can kind of

1 speak the language of the engineers. But I'm never offering a  
2 technical opinion.

3 Q. In your work, have you been retained by both patent  
4 owners and those who are accused of infringement?

5 A. Yes. Over my career, it's been about half and half.

6 Q. Okay.

7 MR. DACUS: Your Honor, at this time we tender  
8 Doctor Becker as an expert on patent infringement damages,  
9 including RAND and FRAND issues.

10 THE COURT: Is there objection?

11 MR. DAVIS: No objection, Your Honor.

12 THE COURT: Without objection, the Court will  
13 recognize this witness as an expert in those designated  
14 fields.

15 Please continue.

16 MR. DACUS: Thank you, Your Honor.

17 Q. (BY MR. DACUS) Would you just give the jury a roadmap of  
18 what it is you were asked to do in this case and what it is  
19 you're going to be talking about this morning, please?

20 A. Yeah. So there's three areas that I developed opinions  
21 on and that we'll talk about today. The first was I was asked  
22 to develop an opinion about a reasonable royalty for  
23 CommScope's alleged use of the TQ Delta asserted patents.

24 The second area that we'll talk about is I have -- was  
25 asked to respond to Doctor Putnam, TQ Delta's damages expert.

1           And the third area is to address these FRAND or RAND  
2           questions that are at issue in this case.

3           Q.    Now, as you said, Doctor Becker, you're not here to offer  
4           any testimony about whether or not these patents are valid.  
5           Correct?

6           A.    Correct.

7           Q.    And you agree that if the jury were to find a patent is  
8           invalid, then there are no damages for that patent.

9           A.    That's correct.

10          Q.    Likewise, you're not here to offer any opinions on  
11          infringement.  Is that correct?

12          A.    Correct.

13          Q.    And if the jury finds that a patent is not infringed,  
14          there would be no damages.  Correct?

15          A.    Correct.

16          Q.    In the event the jury finds either infringement or  
17          validity of a patent, they'll turn to the question of damages.  
18          Is that your understanding?

19          A.    That's my understanding, and that's the role that I'm  
20          playing is to answer that question if they ever get to it.

21          Q.    Give the jury some information of what information you  
22          looked at and utilized in rendering your opinions in this  
23          case.

24          A.    So in every case, and it was the case in this one, there  
25          are lots of documents that are produced.  Back when I got



1 started, it literally would be rooms full of 30 or 40 or 50  
2 boxes. Thankfully, now they are digital so we have them in  
3 the office digitally.

4 But my staff and I review documents produced by the  
5 parties, lots of court documents. There are expert reports on  
6 both sides, trial testimony, discussions that I've had with  
7 defendants' technical experts, I've relied on that. And then  
8 we also do -- my staff and I do work research independently  
9 and gather publicly available information.

10 Q. We're going to dig into the details, but for the jury's  
11 benefit would you summarize what your opinion is related to a  
12 reasonable royalty?

13 A. Yes. So after examining the facts of this case and  
14 asking the question about what would a reasonable royalty be  
15 for the alleged use of CommScope's alleged use of these  
16 patents, first I've concluded that what CommScope would get  
17 and what I need to value is a non-exclusive U.S. license to  
18 these patents starting in November of 2008.

19 For that license, I've concluded that a reasonable  
20 royalty would be a running royalty of 1.57 percent to 2.91  
21 percent of the estimated selling price of the DSL chipset  
22 within these accused DSL modems. When I add up sort of all  
23 the math on that from August 13th of 2015 through June 30th of  
24 2022, that comes to \$5.76 million.

25 And it is my opinion that that royalty at that price and

1 at those rates would be FRAND. It would be fair and  
2 reasonable and non-discriminatory.

3 Q. Were you here when Doctor Putnam, TQ Delta's expert,  
4 testified?

5 A. I was.

6 Q. And I assume you heard him give a much larger number than  
7 what you have just told the jury. Correct?

8 A. Yes. He lands in a significantly different place.

9 Q. And we'll talk in detail, but can you tell the jury at a  
10 high level why -- what key issues you have with Doctor  
11 Putnam's damages opinions?

12 A. Yes, we'll talk about these more, but the first and most  
13 important issue is that he disregards what I consider to be  
14 highly relevant market evidence and, instead, he goes and  
15 builds a very complicated cost savings model.

16 And the problem on that second point is not just that he  
17 has sort of stepped past the market evidence and used this  
18 cost saving model, he's computing cost savings to the  
19 carriers, to companies like AT&T. And these are not -- and  
20 this is not money that CommScope has saved.

21 So it's not, in my opinion, a reliable or even reasonable  
22 estimate of the value that CommScope has gotten out of using  
23 these patents, if in fact it's found that they have used them.

24 Then there's some other errors related in his analysis  
25 that inflate that, but the biggest two issues are those first

1 two.

2 Q. And summarize for the jury, if you would, before the  
3 details, what your opinions are related to the RAND or FRAND  
4 obligation.

5 A. The -- I have really kind of asked three questions. One  
6 is whether the TQ Delta rate card, this sort of set of  
7 standard rates that have been talked about a lot in the trial,  
8 whether that set of rates and the terms are fair and  
9 reasonable and non-discriminatory. And it's my opinion that  
10 they are not FRAND, they don't satisfy that commitment.

11 Second is that Doctor Putnam's \$2.99 rate is certainly  
12 not FRAND in light of the fact that it is far higher even than  
13 TQ Delta's rate card rates.

14 And, finally, that my \$5.7 million royalty calculation,  
15 and in particular the royalty rates and the terms of the  
16 license that I imagine that parties would have negotiated, I  
17 believe that is FRAND.

18 Q. Let's talk about your first assignment and that is  
19 determining a reasonable royalty. How -- what is your  
20 understanding of how you and the jury are to go about  
21 determining that in this case?

22 A. So as I said, I've been doing this for 25 years. I've  
23 provided opinions on patent infringement and reasonable  
24 royalty damages many, many times, and in every one of those  
25 cases the method or the procedure that I follow and that we

1 always follow is something called a hypothetical negotiation.

2 And really what I'm doing is saying what if we put the  
3 patent owner and the potential licensee, the accused  
4 infringer, at a negotiating table back when right before  
5 they're alleged to first be using the patents, and ask the  
6 question, if people sat down at a table and acted reasonably  
7 to negotiate a license back at that time, what would they come  
8 up with. That's a way to figure out what a reasonable royalty  
9 would be is to ask what would reasonable people have  
10 negotiated for a license.

11 Q. Based on your experience and your understanding, is this  
12 what the law allows and requires for determining a reasonable  
13 royalty?

14 A. It certainly allows for it. There are cases where --  
15 I've been in cases where a reasonable royalty is not relief  
16 that the patent holder is seeking, they're seeking a different  
17 kind of relief, and we don't use this reasonable royalty  
18 methodology. But here that's what's being asked for.

19 Q. And when -- when does this hypothetical negotiation  
20 occur?

21 A. So as I said, it's -- we're putting these parties at the  
22 table back when the -- right before they would need a license.  
23 And in this case the facts indicate that that would be in  
24 November of 2008. The first of these seven patents issued in  
25 November of 2008, and so that's what sort of triggers the need

1 for a negotiation.

2 Q. And if looking at November of 2008, what does that tell  
3 us about the parties at the table negotiating?

4 A. So if we go back to November of 2008, these patents and  
5 the patent applications that led to the patents that are being  
6 asserted here were all owned by Aware. We've heard a lot  
7 about Aware this week.

8 So Aware is sitting at the table as the patent owner  
9 licensor. And back at that time, an entity that's now owned  
10 by CommScope called 2Wire, or it's been sort of acquired by  
11 CommScope, was at the time 2Wire. So I put CommScope as 2Wire  
12 at the table back in November of 2008.

13 Q. And in conducting this hypothetical negotiation, is it  
14 your understanding that there are assumptions that you should  
15 make and the jury should make in doing so?

16 A. Yes. This -- we call this a hypothetical negotiation  
17 because it didn't actually occur. And there's also some other  
18 rules that I have to put on the negotiation, and a couple of  
19 them I've listed here. One is that the parties are sitting  
20 there assuming that the patents are valid and enforceable.  
21 They're not haggling over whether the patent's valid. They're  
22 also not haggling whether the patents are infringed. They're  
23 just there to negotiate a license, and they're willing to  
24 negotiate.

25 The one on the right there, the reasonable knowledge and

1 expectations, we talk about this is a cards face up  
2 negotiation, which is unlike a real negotiation where you're  
3 sitting there maybe kind of holding information close to the  
4 vest. In this negotiation, both sides know all the relevant  
5 information. So CommScope, for example, would know what  
6 licenses Aware has entered into, things like that.

7 And, last, they're willing to act in good faith, but they  
8 have to reach an agreement in November of 2008. They can't  
9 sort of kick the can down the road and do it later.

10 Q. Were you here -- you said you were here for Doctor  
11 Putnam's testimony on behalf of TQ Delta. Correct?

12 A. Yes.

13 Q. Did you hear me ask him if he conducted a hypothetical  
14 negotiation and testified to that evidence before this jury?

15 A. Yes, I heard that.

16 Q. And what did he say?

17 A. He said he did not -- what he presented to the jury, the  
18 damages that he has come up with, are not in any way to my  
19 understanding in his testimony based on a hypothetical  
20 negotiation framework at all.

21 Q. You mentioned the word -- we talked about RAND and FRAND.  
22 What is your understanding of a FRAND or RAND royalty?

23 A. So we've heard a lot about that this week. The main  
24 thing is that, as part of Aware's participation in the  
25 standard-setting process, they committed to license any DSL

1 patents that they have that are essential to that standard on  
2 fair, reasonable, and non-discriminatory, or FRAND, basis.  
3 Sometimes we just call it RAND. And this is done because it  
4 protects licensees from excessive royalty demands tied to the  
5 adoption of the standard.

6 So once the standard's adopted, there's really nothing  
7 you can do about it. You're going to make a modem, you order  
8 DSL service, the modem that comes has to be compliant with  
9 DSL, so you're locked in. And you need a protection against  
10 somebody coming -- showing up later, after the standard has  
11 been set, and demanding an unreasonable price for rights to  
12 those patents.

13 The last two is that TQ Delta agreed to comply with the  
14 commitments that Aware had made when they bought the patents,  
15 and they also made their own FRAND commitments for any new  
16 patents that were included in the standard. They made  
17 independent commitments to license on FRAND terms.

18 Q. You were here -- with respect to that third bullet point,  
19 were you here when Doctor Putnam talked about you should not  
20 jack up the price, to use his terms?

21 A. Yes. He said that a number of times, and I agree that  
22 that's kind of the essential deal here is, once the standard's  
23 set, the price for the license really ought to be set back at  
24 the time or before the time that the standard is set, because  
25 once it's set, if you're years later and you're a licensee who

1 has started using and needing a license in, say, 2008 and the  
2 standard was set years before, you're really locked in and you  
3 could get somebody, if they were not acting in a FRAND manner,  
4 could jack up the price.

5 Q. What's your understanding of how you are to go about what  
6 factors you are to use in determining a reasonable royalty at  
7 this negotiating table?

8 A. Yes. So the good news is I don't have to just sort of  
9 come up with my own set of criteria for figuring out what the  
10 parties would have agreed to at that negotiating table.

11 There was a court case from many years ago that outlined  
12 15 factors that might be relevant to determining the outcome  
13 of a negotiation for a reasonable royalty. It's really a  
14 checklist of things that an expert like myself can consider,  
15 and they're on the screen right now. There's 15 factors  
16 and -- got actually 14 of them. The 15th is what would the  
17 outcome of the hypothetical negotiation be. But these are  
18 things that we would look at.

19 Q. Let me stop you for a moment, Doctor Becker. Did you  
20 consider all of these factors?

21 A. I did.

22 Q. But in this case, do you consider some of these factors  
23 to be more important than others?

24 A. Yes. In any case, the -- there -- you figure out which  
25 ones are the most important, and I did find several to be the



1 most important here.

2 Q. And which of these factors did you consider to be the  
3 most important in this case?

4 A. So there are three factors that are really telling you to  
5 go look at market evidence, and -- and it's really that first  
6 factor. It's the very first factor on the list--have there  
7 been licenses to the patent-in-suit.

8 And that makes sense. If you were appraising a house or  
9 trying to figure out, you know, what is a particular house in  
10 a neighborhood in Marshall here worth or what was it worth  
11 five years ago, you'd look first to say, did that house sell  
12 five years ago at the time that I'm trying to figure out what  
13 it was worth.

14 That's usually the best place to go look. And here we  
15 have that evidence.

16 Q. And what market evidence did you find in this particular  
17 case?

18 A. So the -- I determined that the most relevant and  
19 important market evidence here is the evidence of the rates  
20 that Aware charged. And the reasons are that they are that  
21 party sitting at the table. They own these patents back in  
22 2008, so they're the party at the negotiating table, not TQ  
23 Delta.

24 So the rates that they were willing to take in exchange  
25 for licenses to their patents are the most important.

1 Q. The licenses that Aware entered into, did they actually  
2 include the seven patents that are at issue in this lawsuit?

3 A. They included rights to the seven patents. Depending on  
4 which license we're looking at, the -- you know, not all the  
5 patents had issued yet, but they all included rights to the  
6 patent applications that matured into these patents.

7 Q. Did they include many more patents on top of the seven  
8 that we're here to talk about in this lawsuit?

9 A. Yes, many more. We'll talk about that a little more.

10 Q. With respect to the Aware licenses, can you describe to  
11 the jury the ones that you find the most relevant to your  
12 analysis in this case?

13 A. Sure. So the Aware licensing history with this portfolio  
14 really starts back in 1998 with a company called Siemens.  
15 They -- Aware entered into a series of agreements with Siemens  
16 beginning in 1998 that included a grant of patent rights to  
17 their portfolio as it was being developed.

18 If we fast forward about nine years, we get to a company  
19 called Infineon that is really -- they were spun out of  
20 Siemens. And the October 1, 2007 date is important because at  
21 that point Aware and Infineon said all our prior business is  
22 basically concluded and we are going to enter into a new  
23 agreement which was a license agreement for the patents on  
24 October 1st of 2007.

25 And then in November of 2009, there's another license

1 with an entity called Lantiq that had acquired Infineon and  
2 Aware's DSL business.

3 Q. You've -- have you heard during the trial of this case  
4 that, in fact, Aware entered into -- or that, in fact, there  
5 were standards that were put forward and promulgated during  
6 this time?

7 A. Yes. There were quite a few standards put forward. The  
8 ones that are at issue in this case are G.bond, VDSL2, and  
9 G.INP. And what I annotated the slide here is to show when  
10 Aware made their FRAND or RAND commitment, when did they say  
11 we're contributing ideas to the standard, and if they get  
12 adopted, we will license those on fair and reasonable and  
13 non-discriminatory basis.

14 That happened in November of 2004, April of '05 for  
15 VDSL2, and then G.INP in October of 2009.

16 Q. And in your work in this case, did you also look at for  
17 purposes of your analysis any license that TQ Delta entered  
18 into?

19 A. Yes. So TQ Delta bought the patent portfolio from Aware  
20 in 2012, and kind of on their watch since they've had them,  
21 there are a number of licenses starting in 2017 and going all  
22 the way through to late 2022 with Zhone, Fujitsu,  
23 Siemens--that's Siemens Canada--a company called ZyXEL  
24 Networks, and Nokia.

25 Q. And what did you conclude about the relevance with

1     respect to determining a reasonable royalty in this case as it  
2     relates to the TQ Delta licenses?

3     A.     So I concluded that they're not as relevant as the Aware  
4     licenses for a couple of reasons.

5     Q.     Does that mean they're completely irrelevant?

6     A.     No, they're not completely irrelevant. I just think that  
7     the Aware licensing is more relevant.

8     Q.     And as -- with respect to the TQ Delta licenses, did you  
9     analyze and determine within those licenses which might have  
10    more relevance than others?

11    A.     Well, you know, I think one thing to look at is that not  
12    all of these licenses are really that relevant in terms of  
13    comparability. For example, Nokia--we heard about this--their  
14    product is really a central office product. It's not the kind  
15    of CPEs that CommScope makes.

16           Siemens, for example, that's a license that was for a  
17    product a ruggedized product that total royalties were like  
18    \$5,000 so it's really kind of an insignificant license.

19           ZyXEL, we've heard and in my analysis indicates, is  
20    CommScope's largest competitor. So out of all these, if I  
21    were going to look at any of them, ZyXEL clearly is one that  
22    comes into -- kind of comes to mind a number of times because  
23    they are the largest competitor.

24    Q.     I think you just said that during the course of your  
25    work, you've had an opportunity to actually review the amounts

1 paid under these particular licenses?

2 A. Yes.

3 MR. DACUS: Ms. Brunson, may I have the document  
4 camera?

5 Q. (BY MR. DACUS) And in the course of the trial, we've  
6 talked about all of these licenses and the amounts. With  
7 respect to the total licensing revenue that TQ Delta has  
8 received, can you provide that information and evidence to the  
9 jury?

10 A. Right. So if we look at each of those agreements and  
11 look at how much was paid in total, and I think we heard Ms.  
12 Divine testify about that Zhone, for example, was two  
13 different agreements, if you add it all up, including the  
14 Nokia agreement, it's \$27.3 million.

15 Q. With respect to the Infineon and Lantiq licenses, have  
16 you heard testimony in the case about this issue that Aware  
17 had a joint defense -- yeah, a joint development agreement  
18 with these two companies?

19 A. Well, I have heard testimony and Mr. Tzannes or Doctor  
20 Tzannes testified that the relationship, when they started  
21 back with Siemens in 1998, was very much a joint development  
22 agreement. And based on my review of all of the materials, I  
23 wouldn't disagree that that initial effort back in 1998 had a  
24 lot of elements of joint development to it. But by the time  
25 you get to October 1 of 2007, when they enter into this brand

1 new agreement that says all of our prior business is  
2 concluded, those two agreements, the Infineon '07 and  
3 Lantiq '09 agreement, are license agreements for patents, by  
4 and large.

5 MR. DACUS: Mr. Carrillo, can you pull up Exhibit  
6 No. 65-A, please?

7 Q. (BY MR. DACUS) Exhibit 65-A is what, Doctor Becker?

8 A. So this is the 2009, I call it, Lantiq. I think I've  
9 been schooled this week that it's Lantiq. But this is the  
10 amended and restated license agreement between Lantiq and  
11 Aware that was from November 13th of 2009.

12 Q. And with respect to the issue of whether or not this is a  
13 joint development agreement or a license agreement in addition  
14 to the title itself, is there anything within the agreement  
15 that lets you know, let's the jury know, that this is a  
16 license agreement?

17 A. Yeah. I mean, within the agreement there is sort of one  
18 of the primary things we find in any license agreement is  
19 there is what's called a grant, a license grant. And in that  
20 grant, it says, we're granting, we Aware, are granting you  
21 Lantiq the right to use our intellectual property. And if you  
22 go look at the definition of the intellectual property, that's  
23 their patents.

24 The other notable thing is that there was a major section  
25 of this -- of the prior agreements, a big multi-page section,

1 related to engineering services that were being provided by  
2 Aware to the party on the other side that had originally been  
3 Infineon when they were doing that. That whole section is  
4 deleted in this agreement. That's -- what had been many, many  
5 pages, now that whole section just says deleted.

6 So it's clear we're down to just a patent license or a  
7 license agreement for Aware's intellectual property.

8 MR. DACUS: If we can go back, Mr. Carrillo, to the  
9 slides, please.

10 Q. (BY MR. DACUS) Explain to the jury what process and what  
11 steps you went through to determine what a reasonable royalty  
12 should be based on this Infineon and Lantiq license  
13 agreements.

14 A. So one of the first questions when I'm going to use a  
15 comparable license, it's like if you are doing an appraisal on  
16 a house and I've found a house in the neighborhood near the  
17 house I'm trying to appraise that I think is a comp, I need to  
18 actually go look and see: Are the two things comparable? Is  
19 one a two-bedroom two-bath house and is the other a  
20 two-bedroom two-bath house, or are they really different?

21 And so what I've done here to kind of summarize my  
22 comparability look is on the left I have a chip that Lantiq  
23 made. This is their largest volume chip called the PSB 80920.  
24 Doctor Ransom testified about this yesterday. And on the  
25 right is a chip the Broadcom chip that is in the -- it's one

1 of the largest selling chips within our -- the CommScope  
2 products that we have at issue in this case. That box on the  
3 right is a CommScope box.

4 So I asked Doctor Ransom to look at these two products  
5 and say, are they comparable. The chip that's in the  
6 ARRIS/CommScope box and the chip that Lantiq is licensing.  
7 And what I found is that they are. So -- in particular, with  
8 respect to the three standards that are at issue in this case.

9 Q. And were you in the courtroom when I drew with Doctor  
10 Putnam what I called the supply chain in this industry?

11 A. Yes.

12 Q. And do you know from your work in this case that, in  
13 fact, Lantiq supplied chips to the ZyXEL company?

14 A. Yes.

15 Q. And how do you know this Lantiq product was licensed by  
16 Aware?

17 A. So the -- we saw a minute ago the license agreement  
18 itself, the agreement says you have the right to go make DSL  
19 chips. Lantiq then, after it took that license, every  
20 quarter, every three months, they send what are called royalty  
21 reports to Aware along with a check or a wire transfer of  
22 money.

23 And I reviewed all of the royalty reports submitted by  
24 Lantiq to Aware, and I can see this chip on those royalty  
25 reports. I see the quantities, and I see how much they're



1 paying, and I know that this is their highest volume chip.

2 Q. And how -- what were the quantities of chips under those  
3 agreements?

4 A. So at the last agreement -- the last royalty report that  
5 I have from Lantiq to Aware is from the middle of -- it takes  
6 up through the middle of 2015. And on that last royalty  
7 report--obviously they're still paying beyond that--the total  
8 quantities under the Lantiq world were 49 -- just shy of 50  
9 million, 49 million and some change.

10 Q. And were you able to determine the amounts of royalties  
11 that were paid on those 49 million units?

12 A. Yes. If we look, starting with when that counter -- they  
13 reset the counter and said we're going to start at zero and  
14 start counting again in that 2007 Infineon agreement and  
15 counting forward from that the 49 million units, it's \$7.2  
16 million of royalties have been paid.

17 Q. And based on your work in this case, for semiconductor  
18 chips that Lantiq provides to ZyXEL, does ZyXEL -- are they  
19 required to pay an additional royalty for these Lantiq chips?

20 A. No. Once Lantiq sells them, I mean, obviously the only  
21 thing you can do with a -- with a Lantiq DSL chip is put it in  
22 a CPE. So it goes into CPEs for ZyXEL and others, and no  
23 additional royalty is owed downstream of once Aware has been  
24 paid.

25 Q. In your analysis of whether these are comparable, what

1 did you learn?

2 A. So the most important thing for my comparability was  
3 whether the Lantiq chip that is licensed by Aware and I see in  
4 the royalty reports, if that covers the same three standards  
5 that are at issue in this case, VDSL2, G.INP, and G.bond, and  
6 it does. I talked to Doctor Ransom about that to figure out  
7 whether the -- the two chips covered those three standards.

8 Q. And in the course of your work, what did you come to know  
9 through the evidence as it relates to the amount of royalties  
10 that Aware was being paid?

11 A. So the dollar amount of royalties depend on how much they  
12 sell, but the method of calculating the royalties, we call  
13 that the royalty rate, under the Infineon and Lantiq  
14 agreements, is based on this schedule that I have on the slide  
15 here. This is pulled right out of the license agreement.

16 And it says, with respect to VDSL products, Lantiq is  
17 going to pay royalties on this schedule. So it's at 6 percent  
18 of the net sales price of a VDSL product for the first 18  
19 million channels, which in the case of a CPE is one -- one  
20 unit. And then it gradually goes down from 6 percent all the  
21 way to 0 in increments of 20 million.

22 So it's basically volume discounts that kick in with  
23 every additional 20 million cumulative units.

24 Q. Are these the royalties that were being paid by Infineon  
25 and Lantiq to Aware?

1 A. Yes. You see this literally in the royalty schedules  
2 when they -- I mean, the royalty reports when they send this  
3 in along with their money, they include this table at the very  
4 top of the page to show that they're paying based on this  
5 schedule.

6 Q. You may have mentioned this, but to be clear, when it  
7 says "royalties per VDSL product," what does 'VDSL product'  
8 mean in the agreement?

9 A. So in the agreement what it's saying is the product that  
10 we're going to base the amount of money on is the VDSL  
11 chipset, that integrated circuit that implements the VDSL  
12 functions, even if it's included in other devices downstream.

13 Q. Okay. Is that what you're showing here in this slide is  
14 actual language from the agreement?

15 A. Right. So the -- you know, as I said a minute ago, these  
16 chips don't become paperweights on somebody's desk. They make  
17 these DSL chips so that they will go into modems, and then the  
18 modems are going to get sold to somebody else to do things  
19 with.

20 And the agreement makes it very clear that the DSL  
21 product is that integrated circuit that implements one or more  
22 of the xDSL standards.

23 And then this language that I've highlighted here, In the  
24 event a DSL product is sold as part of a product offering that  
25 includes additional DSL products or other components, such as

1 but not limited to the chipset, then the net sales price shall  
2 be the net sales price of the DSL product sold on a  
3 stand-alone basis.

4 Q. And how does that affect your royalty calculation in this  
5 case?

6 A. So what that means is that if we take -- I'll use an  
7 example of the BGW210, which is the largest selling modem. We  
8 start with that box, but we don't look at the selling price of  
9 that box. I have to identify the chipset within that box.  
10 And I've done that for all of the accused products. That's a  
11 Broadcom BCM63148. I then need to get the price, the selling  
12 price, of those chipsets. In the case of this chip, it is \$17  
13 to \$23.

14 And, again, because that language said, if you include  
15 other stuff, you've got to get it down to a DSL -- what a  
16 stand-alone DSL chip would stand for, I take the DSL portion  
17 of that chip, which is, for the purposes of my analysis, the  
18 evidence indicated 67.5 percent, and that gets us to a price  
19 to be used in the royalty calculation for every device that  
20 uses this chip of \$11.83 to \$15.53, depending on the year.

21 Q. So the DSL portion of a Broadcom chip, the apportioned  
22 price of that is somewhere between \$11 and \$15. Am I  
23 understanding this right?

24 A. Yes.

25 Q. And then how do you use that information or how does that

1 inform your market approach evidence in this case?

2 A. So that really kind of gets me to the point where I say,  
3 do I have the market evidence that I need? And the answer  
4 that I came to was yes, that these Aware agreements with  
5 Infineon and Lantiq are the most relevant for a couple of  
6 reasons.

7 One is, they provide royalty rates for the correct  
8 licensor, the right party sitting at the table.

9 Second is that they are technologically and economically  
10 comparable. They are covering the same type of products that  
11 go into the same things.

12 Third is we're at the right time period. We're at the  
13 same time as the November 2008 hypothetical negotiation.

14 And, last, they provide clear evidence of FRAND rates,  
15 because Aware was licensing these under its FRAND obligation.

16 Q. Was there a need to make adjustments to that 6 percent  
17 down to 1 percent of the chipset price, was there a need to  
18 make adjustment to those rates?

19 A. Yes. There's one major adjustment that needs to be made  
20 when I'm looking at the hypothetical negotiation. On the  
21 left, we've got here the Infineon and Lantiq agreements grant  
22 rights to Aware's entire portfolio of patents. And we've  
23 heard a number of different numbers here. When I went and  
24 looked at that time how many issued patents were there in this  
25 worldwide portfolio, it was a little more than 150.

1           So you've got the rights that Infineon and Lantiq are  
2           getting in exchange for 6 percent, declining. If we can go  
3           and see what CommScope is negotiating for, it is a license to  
4           seven U.S. patents. So there is an adjustment that needs to  
5           be made there.

6           Q.    How do you go about that in this case?

7           A.    So the first step is I start with the 6 percent rate on  
8           the left. That's the entire Aware portfolio. The first step  
9           was I identified the U.S. portion of that portfolio, and  
10          that's 29 issued, pending, or published patents.

11          And then the next step is to say, out of those 29 U.S.  
12          patents, what portion of it is represented by the seven that  
13          are at issue in this case. And I used a tool -- I think  
14          Doctor Putnam talked about this idea of using forward citation  
15          analysis to get relative values of patents, and I used that  
16          same tool and came up with that the seven asserted patents  
17          here, depending on the year, range from 48 percent to 70  
18          percent of the value of that wedge of 29 U.S. patents.

19          Q.    What do you do with that information to come to and  
20          determine a reasonable royalty?

21          A.    So now I can take these pieces and get all the way to  
22          a royalty rate for just the license that CommScope would get.  
23          The first step is to look at where are we on the volume  
24          schedule. And so we see that it's 6 percent for the first  
25          18,400,000 units. And I start with November of 2008. That's

1 when the license would happen.

2 And I looked at CommScope's sales of VDSL products from  
3 that point rolling forward. And when we get to the beginning  
4 of the damages period in this case, which is August 13th,  
5 2015, at that point they're still in that first 18 million.  
6 So I considered all the sales up to August of 2015.

7 We're still at 6 percent, so I run that first period at 6  
8 percent. It turns out they trip over that to the second  
9 traunch or the second level by the time you get to 2016. So  
10 from 2016 forward, we're into that further 20 million total  
11 channels sold at 3 percent.

12 Q. You talked about the adjustment that needs to be made  
13 because Infineon and Lantiq cover 150-plus patents, and the  
14 jury and you are only determining the value of seven. How  
15 did you go about doing that?

16 A. So that step is that process of looking at the relative  
17 value within the U.S. portfolio that the seven patents  
18 represent, and that's this line called "apportionment factor  
19 to patents-in-suit." And for each year, for each time slice,  
20 I went and looked at what are the seven patents, to the extent  
21 there are still seven, that--some of them start expiring--what  
22 percentage of the overall portfolio are they, and I get these  
23 factors.

24 So if I take the 6 percent or the 3 percent and multiply  
25 it by the apportionment factor, I'm now down to a rate for

1 just the seven patents, and we can see that starts at 2.91  
2 percent and generally goes down to get to 1.85 percent by the  
3 time we get to 2022.

4 Q. And then how do you apply those rates at the negotiating  
5 table?

6 A. So now I can say, this is what the license in November of  
7 2008 would look like. They would say, you can have a license  
8 to these seven patents for 1.57 percent to 2.91 percent of the  
9 estimated price of the DSL chip.

10 We've still got to go figure out, just like those royalty  
11 reports that get sent in, what would CommScope actually pay  
12 under this license.

13 Q. Okay. And did you calculate what they would actually  
14 pay?

15 A. Yes.

16 Q. 'They' being CommScope?

17 A. So 'they' being CommScope, I've scheduled out what the  
18 royalties would be for every product that's accused in this  
19 case for each of the time periods. You can see it's done by  
20 chipset because the price of the chips are different.

21 When I add that all up across all the units from August  
22 of 2015 to June of 2022 when the data stops, it's \$5,762,726.

23 Q. And so would you just sum up the first part of what your  
24 assignment was in this case with respect to calculating a  
25 reasonable royalty for the jury, please?



1 A. Yes. So, in summary, I think a non-exclusive U.S.  
2 license starting in November 2008 at a running royalty of  
3 these varying royalty rates of 1.57 percent to 2.91 percent of  
4 the estimated selling price of the DSL chipset provides a  
5 reasonable royalty. That totals up to \$5.76 million.

6 And I believe that, because I've based that entirely on  
7 giving CommScope the same terms that Aware under its FRAND  
8 obligation had licensed to Infineon and Lantiq in those two  
9 agreements, this is -- this reasonable royalty is FRAND. It's  
10 fair and reasonable and non-discriminatory.

11 Q. Let's talk about -- you were also asked to look at what  
12 Doctor Putnam did in this case. Correct?

13 A. Yes.

14 Q. And do you have some issues with Doctor Putnam's  
15 analysis?

16 A. Yes. I hit on these a little bit. I've got the same  
17 three things here. Talking about the first one --

18 Q. Talk about the first one.

19 A. The -- first off, he didn't even look at a hypothetical  
20 negotiation. He did this cost savings analysis. And so he's  
21 ignoring the fact that we've got these parties, Aware and  
22 CommScope, at the table, that there are actual license  
23 agreements that are reflective of Aware's rates that they  
24 issued when they had a FRAND obligation, and those are the  
25 October Infineon and -- '07 Infineon and 2009 Lantiq

1 agreements.

2 Those two agreements have exactly the same royalty rate  
3 schedule, so I think that's what he should have used. And he  
4 just said, no, that's not relevant.

5 Q. Okay. The second criticism you had is that he relied on  
6 cost savings of carriers and not CommScope. Can you explain  
7 to the jury why you believe that was not economically sound  
8 from a damages standpoint?

9 A. Yes. So we're -- what really -- at the end of the day  
10 what I'm trying to do is figure out what is a reasonable  
11 royalty for CommScope's use of the patents-in-suit; what  
12 benefit did CommScope get.

13 And we heard from Doctor Putnam that he spent a lot of  
14 time looking at what the cost savings for not having to  
15 trench -- dig trenches and lay fiber to people's houses or  
16 hook up houses with fiberoptic, and came up with that  
17 \$500-something savings.

18 But all of those savings are AT&T's and other carriers'  
19 cost savings; it's not CommScope's savings. So he's looking  
20 at a bucket of benefits that are for the downstream companies  
21 like AT&T. CommScope didn't get those cost savings.

22 Q. And just to be blunt, do you believe that's appropriate  
23 from an economic perspective?

24 A. No, no. To -- I mean, if you're going to use a cost  
25 savings approach, you look at the costs that the potential

1 licensee or the accused infringer saved and say, what -- did  
2 you, CommScope, save any costs by using these patents, and the  
3 answer is no.

4 Q. In your work in this case, did you see any actual license  
5 where DSL patents were licensed at rates that were based on  
6 the carrier's savings?

7 A. No. No. I've never seen a license like that, and  
8 certainly not in -- in this case there's no evidence of that.

9 Q. Did you see any licenses that were based on the  
10 difference between the cost to hook up a DSL customer  
11 consumer's line versus a fiber customer?

12 A. No.

13 Q. Is that your understanding of what Doctor Putnam did?

14 A. Absolutely. Doctor Putnam looked -- he -- we saw he  
15 started with the cost difference between hooking up a fiber  
16 customer -- the estimated cost or projected cost of hooking up  
17 a fiber customer compared to the cost of hooking up a DSL  
18 customer, and just worked his way down just mathematically to  
19 a royalty rate straight from that and applied that to  
20 CommScope.

21 Q. You said you had some other issues that you believe with  
22 Doctor Putnam's damages opinion. What were those?

23 A. Yes, I'll hit those very quickly.

24 First, the first point here, as I say, fails to account  
25 for the fact that fiber is a better service. So even if we're

1 going to live in the world of comparing \$500 more expensive,  
2 500-and-something more expensive to hook up a fiber customer,  
3 but if you spend the \$500, if AT&T or Verizon spends \$500  
4 more, now they have fiber to that house and the service they  
5 can offer is better. It's way better, and they can charge  
6 more for it.

7 So it's not just a straight-up loss of \$585 or whatever  
8 that evaporates as a -- as a lost cost or a cost savings. If  
9 you spend that money, you get a better product. And,  
10 conversely, in the world that Doctor Putnam's in, he's saying  
11 that the -- all of that \$500 is a benefit to AT&T by being  
12 able to offer DSL, but they're offering an inferior service  
13 that they can't charge as much for.

14 Q. And what about this issue of the costs were just delayed,  
15 not avoided?

16 A. Yeah. So the way his math works is it assumes that the  
17 \$500, \$580, or whatever, of cost savings is something that  
18 AT&T -- they got that savings and they've got it in the bank  
19 and they'll always have it. But what the evidence shows is  
20 that it just delayed.

21 At&t got out of the DSL business in 2020, I believe,  
22 so -- and everybody they have now pretty much is on fiber.  
23 And my house, I have AT&T, I have fiber. So they didn't avoid  
24 forever the need to hook up fiber to my house or anybody  
25 else's house. They just delayed it by some number of years.

1 Q. And then what about this assumed 50/50 split of benefits?

2 A. So there was a step in Doctor Putnam's analysis where he  
3 was working his way down. I think he showed all the people  
4 sitting at the table, and he had a line saying the  
5 implementors would get about half the value and the  
6 innovators, the patent holders, would get half the value.

7 But that's just -- this assumed 50/50 split is --  
8 frankly, it's contrary to the evidence. We know what one of  
9 the innovators asked for sitting at that table--Aware. We  
10 know exactly what they asked for, and it's not half of all the  
11 cost savings, it's not half of anything. They are just asking  
12 for a reasonable royalty rate.

13 Q. I want to add one bullet point here, if I could.

14 MR. DACUS: Ms. Brunson, may I have the document  
15 camera, please?

16 Q. (BY MR. DACUS) You were here when Doctor Putnam  
17 testified about this, I think he called it, Derwent and  
18 knockout analysis, sir.

19 A. Yes.

20 Q. Do you believe that's a viable way to calculate damages  
21 in this case?

22 A. No. I think -- I mean, I have an issue -- the whole  
23 process of trying to get to this cost savings in my mind is  
24 broken.

25 This step is an essential part of the math. And as I

1 understand from my understanding of how this was done, we're  
2 taking almost 15,000 patents that were declared to the ITU  
3 related to DSL and saying, based on these knockout words and  
4 other things, that only 71 of those families are actually  
5 essential. That's a pretty precise number. And if that's  
6 even off by a little bit in terms of, you know, sort of how  
7 much that funnel narrows down to just get to 71, just my  
8 understanding of the math of Doctor Putnam's analysis is that  
9 if that 71 is wrong, his number is way different.

10 Q. What if, for example, out of those 15,000, there was  
11 actually 710 essential patents?

12 A. Mathematically his number would come from down 89 million  
13 to like 8.9 million.

14 Q. And just to be clear, so we understand, these 15,000,  
15 that's what members of the ITU said they believed were  
16 essential to DSL standards. Correct?

17 A. They certainly declared those as relevant to the  
18 standard.

19 Q. And under TQ Delta's analysis, they say only 71 of those  
20 15,000 were actually essential. Is that correct?

21 A. That's what I understand their argument to be.

22 MR. DACUS: Ms. Brunson, if we can change. Thank  
23 you.

24 Q. (BY MR. DACUS) Let's talk about the issue with whether  
25 or not you believe TQ Delta is seeking and has sought a FRAND

1 appropriate and a FRAND compliant rate. Okay?

2 A. Okay.

3 Q. Can you tell us what you believe in that regard or what  
4 your opinions are?

5 A. So my opinion--we previewed this earlier--is that the TQ  
6 Delta rates and Doctor Putnam's rates is not compliant with  
7 the FRAND obligation that Aware entered into.

8 Q. And what's the basis for you saying so?

9 A. So I looked at this two ways. The first is to look at  
10 what is Lantiq actually paying? These are Lantiq chips.  
11 They've sold almost 50 million of them by the middle of 2015.  
12 They are being sold to -- at least to CommScope's largest  
13 competitor ZyXEL. And I can look at the royalty reports and  
14 see that this Lantiq XWAY VRX chip, the largest selling chip,  
15 they are actually paying 4.3 cents per unit to Aware for a  
16 license to the entire Aware portfolio in 2015. That's really  
17 what they're paying.

18 And I compared that to what that same chip, that same  
19 Lantiq chip, would get if you had to pay the TQ Delta rate  
20 card. And I just went through, I took Doctor Ransom's advice  
21 about what standards on the rate card would sort of be ticked  
22 off by this chip, and under the rate card, this chip going  
23 into this -- any box, a ZyXEL modem or anybody else's, would  
24 cost \$1.85 as the price for the royalty.

25 Q. And this 4.3 cents that was actually paid, how many

1 patents was that for?

2 A. At least the 152.

3 Q. Okay. And the rate card, at least in this lawsuit,  
4 relates to how many patents?

5 A. Well, the rate card is -- this \$1.85 is for all the  
6 patents. It's still their -- their offered rate for the  
7 portfolio. When we get to Doctor Putnam's analysis, we'll see  
8 he's down to just the seven patents.

9 Q. Understood.

10 You said you had two methods of looking at this FRAND  
11 issue in this case. What's the second?

12 A. So the second is to look at the -- the products that are  
13 literally at issue in this case, that CommScope modem and the  
14 chips that are in the modem and say, Okay, if that chip and  
15 that modem were licensed under the Aware rate schedule that  
16 they said was FRAND, what would that chip pay. And the  
17 BCM63168 chip that's in a very high volume product at issue in  
18 this case, that rate at the volumes we see today would be 31  
19 cents.

20 Q. Why is that rate of 31 cents higher than the 4 cents or  
21 significantly higher?

22 A. So it's -- it's higher for two reasons. The biggest  
23 reason is that this Broadcom chip is much more expensive than  
24 the Lantiq chip. Lantiq's chips are -- I think they're like  
25 \$5 versus the Broadcom chips are more like 15.



1 Q. And how does the effective portfolio rate under the Aware  
2 license for the actual products in this case compare to TQ  
3 Delta's rate card?

4 A. So under TQ Delta's rate card, for the whole portfolio  
5 they would -- what they're demanding and in their -- their  
6 initial offer and what I understand they've sort of stuck to  
7 is that the rate card would be \$1.85 for a box like the -- the  
8 one on the screen that has a Broadcom 63168 chip in it.

9 Q. Okay. And did you have -- do you have an opinion as to  
10 whether or not TQ Delta's rate card or standard rate is or is  
11 not a FRAND offer?

12 A. It's my opinion that it is not FRAND. It clearly is  
13 at -- it is different, significantly different and  
14 significantly higher than the rates that were set by Aware  
15 back at the time that the standard was -- was adopted. And in  
16 that regard, I think it discriminates against a later licensee  
17 like CommScope. And for that reason, I don't think it's -- it  
18 would be fair to charge somebody \$1.85 when your other  
19 licensee is paying 4-and-a-half cents.

20 Q. Do you think the difference between the \$1.85 and the 31  
21 cents would put CommScope at a competitive disadvantage?

22 A. Yes, absolutely. They would have to -- I mean, they're  
23 having to compete with companies like ZyXEL who buy chips from  
24 Lantiq. The chips they buy from Lantiq have kind of embedded  
25 in them only a four-and-a-half-cent cost of the royalty for

1 the same -- exact same patents, exact same inventions, that  
2 are being licensed for \$1.85.

3 Q. So to be -- to be perfectly clear, ZyXEL for a Lantiq  
4 chip is paying approximately four cents based on the rates?

5 A. Well, ZyXEL isn't paying any of it. ZyXEL's buying the  
6 chip. But Lantiq, in order to sell that chip for \$5 or \$5.50,  
7 whatever, to ZyXEL has only paid four-and-a-half cents to get  
8 royalty -- to get a license to the whole portfolio.

9 Q. Did you also compare the actual rate that Doctor Putnam  
10 and TQ Delta seek in this lawsuit to determine whether or not  
11 it is a FRAND rate?

12 A. Yes. So the last comparison I made was to say, okay, how  
13 much is -- would that same Broadcom chip at 31 cents under the  
14 Aware FRAND rate schedule, what -- what is Doctor Putnam  
15 asking for for devices that have that chip in it. And for  
16 just the seven asserted patents, not the whole portfolio, his  
17 price is \$2.99.

18 Q. Probably obvious, but do you believe that CommScope would  
19 be competitively disadvantaged if they were required to pay  
20 \$2.99 versus the 31 cents?

21 A. Oh, yeah, no doubt. I mean, not only is that more money  
22 for the same reasons we talked about, but after paying \$2.99,  
23 they've only got a license to seven patents, and the question  
24 remains, you know, competitively, how much more are they going  
25 to have to pay for the other 150, 100-plus patents in the

1 portfolio.

2 Q. Have you -- what are we looking at on the screen, Doctor  
3 Becker?

4 A. So this is just to sum up a comparison of 31 cents on the  
5 left is the rate that a Broadcom BCM63168 chip and the modems  
6 that use that chip would pay versus the TQ Delta rate card  
7 which is almost six times the cost for the royalty and Doctor  
8 Putnam's rate which is about nine-and-a-half times what the  
9 actual Aware royalty rates that they really did license at.

10 Q. You were here -- were you here in the courtroom yesterday  
11 when Doctor Putnam and TQ Delta for the first time mentioned  
12 this extra \$7 million for holdout?

13 A. Yes.

14 Q. Did you listen to what Doctor Putnam said as a rationale  
15 or an explanation for that \$7 million?

16 A. I did.

17 Q. Okay. Can you tell the jury whether or not you believe,  
18 at least what he proposes as the rationale, is consistent with  
19 economic principles?

20 A. Yes, I have an opinion about that, and the model that  
21 Doctor Putnam uses for this kind of holdout to say that  
22 there's an additional amount of benefit that CommScope got  
23 that is a detriment to TQ Delta, there's a bunch of problems  
24 with it. The most important, though, is that the premise is  
25 that by not paying a royalty, by holding out and saying, we're

1 not going to pay your rate card rates, CommScope has  
2 gained -- it allowed them to underprice the competition, which  
3 then the economic theory says, if you underprice the  
4 competition, you get extra sales, and those sales were taken  
5 away from TQ Delta's licensees.

6 The problem with that is it just doesn't -- the reality  
7 is CommScope's products are priced significantly higher than  
8 its competitors. It's the competitors like ZyXEL who are  
9 undercutting CommScope on price. So the -- right out of the  
10 gate, the premise of this whole holdout model is wrong.

11 Q. So as you understood it, Doctor Putnam was saying  
12 CommScope's gaining advantage because they're able to undercut  
13 their competitor in price. Is that fair?

14 A. Yes.

15 Q. But you know from the facts and the evidence in this case  
16 that it's just the opposite. Is that right?

17 A. Yes.

18 Q. Indeed, ZyXEL and Zhone's products are undercutting  
19 CommScope's price.

20 A. Yes.

21 Q. Can you give the jury any sort of magnitude of how much?

22 A. Their -- my understanding if you look at an overall  
23 average, the ZyXEL boxes, ZyXEL modems, are almost half,  
24 they're 40 percent lower per unit than CommScope's products.

25 Q. Just to sum up, what do you believe -- if the jury were

1 to find that patents are infringed and the patents are valid,  
2 what do you believe the reasonable royalty in this case should  
3 be?

4 A. I believe that a reasonable and fair and reasonable, so a  
5 FRAND royalty as well for these seven patents over the damages  
6 period of August 13th, 2015, through the date that we have  
7 data, June 30th, 2022, is \$5.76 million.

8 Q. That's all I have, Doctor Becker. Thank you.

9 MR. DACUS: I pass the witness, Your Honor.

10 THE COURT: Counsel, approach the bench, please.

11 (The following was had outside the hearing of the  
12 jury.)

13 THE COURT: Mr. Davis, the information I have shows  
14 that you've estimated an hour for cross-examination. Is that  
15 correct?

16 MR. DAVIS: Yes, Your Honor.

17 THE COURT: I have a call I need to take not later  
18 than a quarter till, which is probably somewhere on the order  
19 of 20 minutes from now. I can either break early for lunch or  
20 I can get you going for about 20 minutes and then recess.

21 MR. DAVIS: I'm fine to break early for lunch.  
22 Either way, Your Honor.

23 THE COURT: Do you have any preference?

24 MR. DAVIS: No. Break early would be nice.

25 THE COURT: I'm springing this on you so I think I

1 need to defer to what you prefer.

2 MR. DAVIS: Yes, that will be fine, Your Honor.

3 THE COURT: Okay. That's what we'll do then.

4 MR. DAVIS: Okay. Thank you.

5 (The following was had in the presence and hearing  
6 of the jury.)

7 THE COURT: Ladies and gentlemen, I have a call  
8 scheduled that I need to take before noon, and after  
9 consulting with counsel, it probably makes more sense for us  
10 to break early for lunch and come back early than to get part  
11 of the way through the cross-examination and then break in the  
12 middle of it for lunch. So we're going to recess for lunch  
13 early today.

14 I'm going to ask you to take your notebooks with you over  
15 the lunch break to the jury room. I'm not sure that Ms.  
16 Clendening will have lunch waiting on you, but she should have  
17 it to you shortly. I've let her know that we were probably  
18 going to break early.

19 Please follow all the instructions I've given you about  
20 your conduct over this break for lunch, including not to  
21 discuss anything about the case with each other. And sometime  
22 around 12:00 or shortly thereafter, perhaps 12:15, we'll try  
23 to reconvene and we'll pick up at that point with the  
24 Plaintiff's cross-examination of Doctor Becker.

25 So with that, the jury's excused for lunch break at this

1 time.

2 (Whereupon, the jury left the courtroom.)

3 THE COURT: Court stands in recess for lunch.

4 (Lunch recess.)

5 THE COURT: Be seated, please.

6 Are you prepared to go forward with cross-examination,  
7 Mr. Davis?

8 MR. DAVIS: Yes, I am.

9 THE COURT: All right. Let's bring in the jury.

10 (Whereupon, the jury entered the courtroom.)

11 THE COURT: Welcome back from lunch, ladies and  
12 gentlemen. Please have a seat.

13 We will continue with the examination of Dr. Stephen  
14 Becker, and we'll proceed with cross-examination by the  
15 Plaintiff.

16 Mr. Davis, you may proceed.

17 MR. DAVIS: Thank you, Your Honor.

18 CROSS EXAMINATION

19 BY MR. DAVIS:

20 Q. Good afternoon, Doctor Becker.

21 A. Good afternoon.

22 Q. You and I have met before. Correct?

23 A. Yes.

24 Q. It's good to see you again, sir.

25 A. Very good to see you, too.

1 Q. You wrote two reports in this case. Correct?

2 A. Yes.

3 Q. And you wrote an initial report and then a supplemental  
4 report.

5 A. Correct.

6 Q. You also provided a deposition. Correct?

7 A. Yes.

8 Q. Now, you were hired to be CommScope's expert witness in  
9 this case. Correct?

10 A. Correct.

11 Q. And like Doctor Putnam, you also charge for your time.

12 A. Yes.

13 Q. And you get paid by the hour.

14 A. Correct.

15 Q. Correct? And your hourly rate is \$750 an hour. Is that  
16 right?

17 A. It is.

18 Q. Okay. And you've been involved in over 150 different  
19 lawsuits?

20 A. Yes, easily that number.

21 Q. Okay. And you're in a courtroom on average every other  
22 month testifying. Correct?

23 A. Probably, yes.

24 Q. In fact, you were in this courtroom a couple of the  
25 months ago testifying, weren't you?



1 A. Yes.

2 Q. And you're here today solely to give opinions on damages.  
3 Correct?

4 A. That's correct.

5 Q. No technical analysis at all.

6 A. Correct.

7 Q. For anything in your opinion that relies on technical  
8 information, you relied on someone else.

9 A. That's correct.

10 Q. You're not offering any opinions about infringement.  
11 Correct?

12 A. Correct.

13 Q. You're not on invalidity.

14 A. Correct.

15 Q. And you have a degree in computer science. Right?

16 A. Yes.

17 Q. And despite having that degree -- and, by the way, that's  
18 a Bachelor's. Correct?

19 A. Yes.

20 Q. It's not anything beyond undergraduate.

21 A. Correct.

22 Q. And despite having that degree, I just want to be -- want  
23 to -- want to be clear that you're not offering any opinions  
24 on technical topics.

25 A. That's correct.

1 Q. Okay. Your testimony in your past cases is  
2 overwhelmingly for the defense. Is that right?

3 A. I wouldn't agree with that, no. I think in -- in my oil  
4 and gas practice, yes. In my intellectual property and patent  
5 valuation practice, the last time I counted up over the last  
6 25 years, it was 50/50.

7 Q. So I just looked at the CV you submitted with your  
8 report. Do you recall submitting a CV with your report?

9 A. Yes. That covers I think the last four years.

10 Q. Correct. And so at least for the last four years, would  
11 you agree with me that your representation has been more  
12 overwhelmingly on the defense side?

13 A. With matters that resulted in me actually testifying. I  
14 think if you looked at just where I was hired, which the list  
15 that's attached to my CV is only where I've actually given  
16 testimony, the testimony ones happened -- just the way things  
17 worked out for the last four years, it's been much more  
18 defense side cases.

19 But in that same time period, I think if you looked at  
20 all the cases I've been retained as an expert and maybe  
21 written reports, it's still about 50/50.

22 Q. Okay. Well, I looked at the list that you provided  
23 attached to your expert report, and in that report, in that  
24 part of your report, you cite something like 81 different  
25 matters over the last four years.

1 A. Yes.

2 Q. And in that report, in that list of cases every time you  
3 represented the defendant, you had a line under it. Right?

4 A. Correct.

5 Q. Well, I counted up every time, and you had over 60 that  
6 were for the defense side out of those total of 80.

7 A. That would be correct. That includes the oil -- oil and  
8 gas matters as well.

9 Q. Now, you were here for Doctor Putnam's testimony.  
10 Correct?

11 A. Yes.

12 Q. And you heard CommScope's lawyers criticize Doctor Putnam  
13 for not having negotiated an actual patent license. Do you  
14 remember that?

15 A. I did.

16 Q. Now, to be fair to Doctor Putnam, you don't have  
17 extensive experience in actual patent licensing negotiations.  
18 Correct?

19 A. Not extensive. I have done it, but certainly not  
20 extensive. It's not what I do as a profession.

21 Q. And, again, you heard Doctor Putnam's testimony.

22 A. Yes.

23 Q. Correct?

24 And he demonstrated his reasonable royalty analysis  
25 through his -- the slides that he presented and he showed the

1 calculations that he -- he made. Do you remember that?

2 A. Yes.

3 Q. And as far as his math goes, you don't have any  
4 disagreement with his math. Correct?

5 A. That's correct.

6 Q. Your disagreement with him is more fundamental than that.  
7 Right?

8 A. Much more, yes.

9 Q. Yes. And Doctor Putnam testified that there were 36.1  
10 million infringing CommScope units. Do you recall that?

11 A. Yes.

12 Q. And the average cost of those were \$95 apiece. Do you  
13 remember that?

14 A. Yes.

15 Q. And if you did that math, that came out to \$3.4 billion,  
16 roughly. Is that correct?

17 A. That's about right, yes.

18 Q. And that's the money, that's the value that CommScope has  
19 received for those sales, isn't it?

20 A. It's the sales revenue, yes.

21 Q. Uh-huh. And over the course of -- and -- and over the  
22 course of selling those \$3.4 billion worth of DSL modems,  
23 CommScope never took a license from TQ Delta, did it?

24 A. Correct.

25 Q. And its competitors like Zhone and ZyXEL and Nokia, they

1 did, didn't they?

2 A. Eventually they did, yes.

3 Q. And you would agree that Doctor Putnam did not calculate  
4 reasonable royalty damages for periods beyond the life of any  
5 asserted patent, wouldn't you?

6 A. That's true. He does not.

7 Q. Okay. So any criticisms that may have been lodged to  
8 Doctor Putnam for -- or discussion about expired patents in  
9 this case, Doctor Putnam's not trying to account for any sales  
10 beyond the life of a patent. Correct?

11 A. I don't believe he is.

12 Q. Okay. Now, one of the fundamental assumptions that  
13 damages experts like yourself and Doctor Putnam make in doing  
14 their calculations is that the patents are valid and  
15 infringed. Would you agree with me on that?

16 A. Yes.

17 Q. And in this case those patents are valid and they're  
18 actually infringed by CommScope. Correct?

19 A. Yes.

20 Q. Now, in calculating damages, you have to determine how  
21 much compensation TQ Delta should receive based on that  
22 assumption, don't you?

23 A. Yes. That's the fundamental assumption that underlies  
24 the damage analysis.

25 Q. You assume patents are valid and that they're infringed.

1 Correct?

2 A. Yes.

3 Q. Now, in the contrast to that assumption, the assumption  
4 in the patents -- the assumption about the patents in the  
5 licenses that TQ Delta entered into, that assumption wasn't  
6 made, was it?

7 A. There's no -- you know, I think with respect to some of  
8 them where there were settlements of disputes, that clearly  
9 was being disputed. In others, I think there's not  
10 necessarily any -- any lack of an implication or assumption in  
11 the nature of the agreement that the patent -- that they were  
12 licensing valid patents that they wanted a license to.

13 Q. And that would include ZyXEL. Correct?

14 A. ZyXEL, yes, that was -- that was a settlement.

15 Q. And -- well, but the assumption that the patents were  
16 valid and infringed wasn't in operation in the ZyXEL license  
17 agreement. Correct?

18 A. Correct.

19 Q. And with Siemens? Is that correct?

20 A. Siemens Canada, I would say there's no evidence that the  
21 parties had any dispute about that.

22 Q. And, in fact, Siemens came to Nokia -- I'm sorry, Siemens  
23 came to TQ Delta as -- before they even began selling any  
24 products. Correct?

25 A. Correct.

1 Q. They came and said, hey, we're going to build a product  
2 that is going to practice one of the VDSL standards -- I'm  
3 sorry, one of the ITU standards for DSL, and they knew they  
4 needed to get a license from TQ Delta to do so. Correct?

5 A. Yeah, I think we can assume they knew they wanted a  
6 license. Whether they, quote, knew they needed it, the only  
7 evidence we have of them coming is that they asked for a  
8 license.

9 Q. Now, the hypothetical negotiation that is -- do you agree  
10 that the *Georgia-Pacific* factors and the hypothetical  
11 negotiation specifically, that that approach is not required  
12 in every case?

13 A. Certainly not in every -- in every case it's not  
14 required. I know there are cases -- like I said, with lost  
15 profits cases, you use a different methodology, but it's  
16 not -- I don't think there's any sort of black letter law that  
17 says you have to do it that way.

18 Q. And while the hypothetical negotiation approach may be  
19 common, it's not required in every case. Correct?

20 A. I would agree with that.

21 Q. Okay. And the amount of a reasonable royalty in a patent  
22 case, in a patent infringement matter, it depends on the  
23 unique facts and circumstances of each case. You would agree  
24 with that.

25 A. Yes.

1 Q. And you would also agree that the law is that the willing  
2 licensee/licensor approached must be flexibly applied as a  
3 device in the aid of justice.

4 A. Yes.

5 Q. You agree with that. Right?

6 A. Yes.

7 Q. That's directly out of your expert report. Correct?

8 A. Yes. I put that in every report.

9 Q. And so, as far as you know, there is nothing improper in  
10 Doctor Putnam not basing his opinion on a hypothetical  
11 negotiation. Correct?

12 A. Not that by itself. He could have gotten to a reasonable  
13 royalty in some other way different from what he did that  
14 would have been reasonable.

15 Q. He could have used a different approach. Correct?

16 A. If it was a reasonable and proper approach, yes.

17 Q. But he chose to use the approach that he did, didn't he,  
18 a cost savings approach? Correct?

19 A. Yes. He definitely used a cost savings approach. I  
20 agree with that.

21 Q. And there's nothing wrong with a cost savings approach,  
22 is there?

23 A. Conceptually, it's not -- there's nothing wrong if you're  
24 measuring the cost savings to the party that's accused of  
25 using the technology. That's a reasonable place to start.



1 Q. You yourself have used a cost savings approach. Correct?

2 A. Yes, where it's the cost savings to the accused  
3 infringer.

4 Q. Okay. But you yourself have used a cost savings  
5 approach. Correct?

6 A. Yes.

7 Q. Okay. And how many patent cases have you worked on  
8 involving standard essential patents?

9 A. Probably -- well, I've been hired and done some work on  
10 probably a dozen, and I've provided expert reports and maybe  
11 depositions in half a dozen.

12 Q. And you understand that Doctor Putnam testified yesterday  
13 that he's actually been involved substantively on over 20  
14 standard essential patent cases. Correct?

15 A. I heard him say that, yes.

16 Q. Okay. Now, if a -- if a patent is assumed to be  
17 infringed and valid in the hypothetical negotiation, then  
18 unlike in the real world, there can be no discount in the  
19 hypothetical negotiation for the possibility that the patent  
20 is either invalid or not infringed. Would you agree with  
21 that?

22 A. Yes.

23 Q. And in the real world, not the hypothetical world, Nokia  
24 didn't actually know whether TQ Delta's patents were valid and  
25 infringed, did it?

1 A. In that -- in the negotiation that they had with TQ Delta  
2 over reaching their agreement, I would agree with that.

3 Q. And, in fact, Nokia contested the validity and the  
4 infringement of TQ Delta's patents, didn't they?

5 A. Yes, they were vigorously contesting that.

6 Q. And they took a license, didn't they?

7 A. Well, ultimately they settled their dispute.

8 Q. And they took a license. Correct?

9 A. And as part of the settlement, part of that package, they  
10 took a license.

11 Q. Uh-huh. And they only got a license to the United  
12 States, didn't they?

13 A. I disagree with that. Effectively, they were licensed to  
14 a significant portion of their worldwide sales.

15 MR. DAVIS: I'll object as non-responsive, Your  
16 Honor.

17 THE COURT: Overruled. He responded. He just  
18 didn't agree with you. It's a responsive reply.

19 MR. DAVIS: Thank you, Your Honor.

20 THE COURT: Let's proceed.

21 Q. (BY MR. DAVIS) Now, in the hypothetical negotiation,  
22 CommScope does not know that the patents are valid and  
23 infringed. Correct?

24 A. I'm sorry. Can you rephrase that?

25 Q. Sure. Let me try again. In the hypothetical

1 negotiation, CommScope does know that the patents are valid  
2 and infringed. Correct?

3 A. Yes.

4 Q. And in a hypothetical negotiation, CommScope should not  
5 receive a valid and infringed discount, should it?

6 A. I agree. There shouldn't be an express discount off of  
7 what would otherwise be fair and reasonable rates.

8 Q. I mean, you would agree that not giving an infringer in  
9 the hypothetical negotiation a discount in that regard is the  
10 law. Correct?

11 A. Yes.

12 Q. And you didn't make any adjustment for that difference  
13 between the Nokia agreement, which was a license, which was a  
14 licensee, and CommScope which we assume is the adjudged  
15 infringer, did you?

16 A. In the Nokia agreement? I'm not sure -- I guess I'm  
17 confused because I don't use the Nokia agreement. I reached  
18 the conclusion that the Nokia agreement was not relevant for a  
19 number of reasons that I described. So I'm not sure -- did I  
20 not -- did I make an adjustment? I excluded the Nokia  
21 agreement before we ever got to the question of adjustments.

22 Q. Okay. And you make no adjustment for the difference  
23 between Lantiq which also didn't know whether TQ Delta's  
24 patents are valid and infringed and CommScope, did you?

25 A. There's no -- in my opinion, no adjustment needed to that

1 agreement. So you're correct I don't sort of make an  
2 adjustment for the sort of questions about validity and  
3 infringement.

4 Q. Okay. And you didn't make any adjustment for the fact  
5 that CommScope is certainly not a first mover with respect to  
6 licenses from TQ Delta. Correct?

7 A. Sure. I didn't. Now, yeah, I mean, I -- I don't have  
8 a -- a first mover discount in any of the numbers that I've  
9 presented.

10 Q. And you also made no adjustment for the fact that  
11 CommScope was licensing in the U.S. only. Correct?

12 A. I did make an adjustment for that.

13 Q. Okay. So, in other words, you didn't make adjustments  
14 for the economic differences between the hypothetical  
15 negotiation and TQ Delta's actual licenses, did you?

16 A. That's correct because I don't use TQ Delta's licenses as  
17 indicative of the reasonable royalty in any way.

18 Q. You don't think they're relevant to the negotiation at  
19 all.

20 A. I think they're -- they provide a relevant backdrop  
21 against which to assess the -- particularly the ZyXEL as the  
22 largest competitor. But beyond that, I -- I don't think that  
23 they -- they don't tell us what a negotiation in 2008 between  
24 Aware and CommScope would result in, and they don't really  
25 inform that in any way.

1 Q. And in 2008, the negotiation, on one side of the table,  
2 you've said that that is CommScope. Correct?

3 A. It's 2Wire, which for the purposes since 2Wire sort of  
4 through a series of transactions is now sort of embedded --  
5 that entity and its past is embedded within CommScope, I used  
6 those terms interchangeably, but it's -- literally the only  
7 part of this whole chain of parties that existed at the time  
8 was 2Wire.

9 MR. DAVIS: Could I have Defense slides 6.10,  
10 please, Mr. Diaz?

11 Q. (BY MR. DAVIS) On the slide that you showed the jury  
12 during your direct examination, you have 2Wire in parentheses  
13 under CommScope, don't you?

14 A. Yes.

15 Q. And you have that there because CommScope ultimately  
16 acquired 2Wire. Is that right?

17 A. Yes.

18 Q. On the Aware side, you don't have anything in parentheses  
19 under there, do you?

20 A. Correct. That's -- that's who's at the table is Aware.

21 Q. And in 2012, tQ Delta acquired the patents at issue in  
22 this case. Correct?

23 A. Correct. They didn't become -- they didn't acquire  
24 Aware. They just became the patent owner.

25 Q. And what these parties are talking about at this table

1 are the patents at issue in this lawsuit, aren't they?

2 A. That's true.

3 Q. And you're not giving the Aware side of the table any  
4 credit for the work that TQ Delta has done from 2012 on, are  
5 you?

6 A. I'm not sure what you mean work. I mean, the -- the  
7 license that is being granted here covers all the patents that  
8 were around at the time and any subsequent patents that issued  
9 from applications and assets that were in place back at the  
10 time of Aware.

11 So they are getting -- the license that CommScope gets  
12 and 2Wire get are -- is a license that includes the portfolio  
13 as it evolves to include these seven patents.

14 Q. Well, you understand, sir, that TQ Delta has actual  
15 licenses in the real world with actual DSL modem  
16 manufacturers. Correct?

17 A. Yes.

18 Q. You don't list TQ Delta anywhere on this -- on the  
19 left-hand side of the table on this slide, do you?

20 A. I don't.

21 Q. And you didn't account for the TQ Delta licenses in the  
22 calculations you did in arriving at your ultimate damages  
23 opinion, did you?

24 A. That's correct.

25 Q. And you understand, sir, that this negotiation would be a

1 RAND or FRAND negotiation. Correct?

2 A. Yes.

3 Q. And as part of that, the parties have to be fair and  
4 reasonable and non-discriminatory. Correct?

5 A. I agree with that.

6 Q. And that would be with respect to anybody that came  
7 before and anybody that came after. Isn't that right?

8 A. Well, sitting at the table in 2008, I think they -- they,  
9 Aware -- it's Aware that has the obligation. So Aware has to  
10 license on fair and reasonable and non-discriminatory basis.

11 On the -- later when we get to the question about whether  
12 TQ Delta's offers to CommScope in, you know, many years later  
13 are FRAND, I think we have to consider the licensing history.  
14 So I think at this table we're not really looking at in  
15 forming this negotiation with, say, what they did with Nokia  
16 in 2022.

17 Q. But the folks at this table know, as part of the  
18 hypothetical world, they have knowledge of the facts that  
19 happen in the future. Correct?

20 A. They can, yes. If they would be relevant and sort of  
21 germane to the question that -- on the table, yes.

22 Q. And they would certainly be relevant to Aware, wouldn't  
23 they?

24 A. No, I don't agree with that.

25 Q. You were in the courtroom for Mr. Michael Tzannes'

1 testimony, weren't you?

2 A. Yes.

3 Q. And you heard him testify that he -- when they did any of  
4 their licenses with chip makers, it was part of a joint  
5 development agreement. Correct?

6 A. I heard him say that some of those were. I don't agree  
7 that his -- with the characterization that his testimony said  
8 that all of their licenses were joint development.

9 Q. Correct. But the agreements that you're relying on  
10 primarily, the Lantiq agreement and the Siemens agreement --  
11 I'm sorry, the Infineon agreement, those agreements were part  
12 of a longer history dating back to the early -- late '90s,  
13 weren't they?

14 A. Yes. The way your question is phrased, they are part of  
15 a longer history.

16 Q. Correct. And, in fact, that history is referenced on the  
17 face of those agreements, isn't it?

18 A. It is.

19 Q. Right at the beginning in the whereas clauses, it says,  
20 whereas, the parties have known each other and worked together  
21 for a long time since 1999, don't they?

22 A. They do.

23 Q. And you heard Mr. Tzannes, Mr. Michael Tzannes, testify  
24 that if he was sitting at the table with CommScope, he would  
25 never have given CommScope the same deal that you're



1 suggesting CommScope should get, the same deal that Infineon  
2 or Lantiq got. You heard him say that. Correct?

3 A. I heard him say something to that effect, yes.

4 Q. And that's not hypothetical. That's in the real world;  
5 it happened in this courtroom just a few days ago.

6 A. Yes.

7 Q. And Mr. Michael Tzannes, he was the CEO of Aware at the  
8 time. Correct?

9 A. He was.

10 Q. He'd been at the company since the late '90s.

11 A. Correct.

12 Q. He's the one who had signed the Infineon agreement and  
13 the Lantiq agreement. Correct?

14 A. Yes.

15 Q. So there's no one better positioned to know what would  
16 have been in Aware's mind when they were sitting at this table  
17 than Mr. Michael Tzannes. You would agree with that.

18 A. I think in terms of what was in Mr. Tzannes' mind, he --  
19 he certainly would have some sense of what in the real world  
20 they would have come to the table with.

21 Q. And it's your testimony that, regardless of that state of  
22 mind, regardless of what Aware would do, regardless of the  
23 fact that they would know that down the road if they were  
24 going to license to a DSL manufacturer like CommScope, they  
25 would not have given them the Infineon or the Lantiq terms.

1 A. Well, I think -- I heard his testimony a little  
2 differently with respect to Lantiq. Certainly with respect to  
3 the terms from the earlier agreements that predate the Lantiq  
4 agreement, I agree with you.

5 Q. I mean, according to you, sir, CommScope can show up at  
6 the table and say, we want the deal the chip guys got from the  
7 late '90s, that's what we get, and Aware just rolls over.

8 A. No, that's not my testimony at all.

9 Q. You don't think, sir, that Aware, sitting at that table,  
10 would say back to CommScope, hey, guess what, in this  
11 hypothetical world, we know that down the road, beginning in  
12 2017, there are going to be licenses to DSL manufacturing  
13 products and those licenses are going to have very different  
14 rates and very different terms than the licenses we did with  
15 our partners from the early '90s. Correct?

16 A. Sorry. That was a long question. I lost the beginning  
17 of it. Could you restate that?

18 Q. You don't think that Aware would say to CommScope,  
19 sitting at this table, lay out the whole situation and say,  
20 listen, CommScope, we know that your competitors down the road  
21 eight to 10 years from now are going to take licenses on the  
22 terms that we would want, so you can't have the terms that our  
23 partners from the late '90s got. You are a different company,  
24 you're different in the supply chain. You don't think Aware  
25 would say that to CommScope?

1 A. No. I think Aware would be looking at the restated,  
2 renegotiated Infineon agreement and the Lantiq agreement as  
3 indicative of their RAND/FRAND obligation and would say, what  
4 TQ Delta does 10 years from now doesn't matter because we have  
5 an obligation to license on the fair terms when the standard  
6 is being set.

7 Q. And the terms have to be under reasonable terms and  
8 conditions. Correct?

9 A. Yes.

10 Q. And a chip maker under your view -- I'm sorry. A DSL  
11 maker gets the same rate as a chip maker. Is that correct?

12 A. Under the circumstances, I think they would get -- a DSL  
13 maker who is using DSL chips as the DSL component of their  
14 modem must get the same rate as that exact same set of patents  
15 for an identical chip would get. Otherwise, you're  
16 discriminating just because of, you know -- I think it would  
17 be discriminatory to charge the user of the chip a different  
18 rate than the seller of the chip.

19 Q. And you think that, sir, because you believe that all of  
20 the infringement occurs in the chip. Correct?

21 A. Not really. I mean, I think that's part of the analysis,  
22 but the most important part is that all of the rights  
23 necessary for the CPE maker were included in the grant to  
24 Lantiq.

25 Q. You believe, don't you, sir, it's your testimony and it's

1 the basis for your opinion that the smallest saleable patent  
2 practicing unit in this case is the DSL chip, don't you?

3 A. I do.

4 MR. DAVIS: Could I have Exhibit 65, please, Mr.  
5 Diaz?

6 Q. (BY MR. DAVIS) I want to take a look real quick.

7 This -- Doctor Becker, do you see here -- this is the 2009  
8 agreement that you discussed on direct. Do you see that?

9 A. Yes.

10 MR. DAVIS: Could I have the preamble, please, Mr.  
11 Diaz? It's the bottom of this page just below. There we go.

12 Q. (BY MR. DAVIS) The first line of the preamble of this  
13 agreement, "Whereas, Lantiq and its affiliates design,  
14 develop, manufacture, and market a wide range of semiconductor  
15 devices for, among others, wireline communication  
16 applications." Correct?

17 A. Yes.

18 Q. That's what that says.

19 A. It does.

20 Q. And this is the preamble to the whole agreement, isn't  
21 it?

22 A. It is.

23 Q. And they're laying out the context, the conditions, under  
24 which this agreement is being reached. Correct?

25 A. It's the context. I wouldn't say it's conditions that

1 set conditions on the agreement.

2 Q. And it says, Aware is engaged in the business of and  
3 specializes in developing and supplying discrete  
4 multitone-based digital subscriber line silicon technology.  
5 That's what the agreement says, doesn't it?

6 A. Yes.

7 Q. And it says in the next whereas clause, Whereas, Aware  
8 has been cooperating in a long-term contractual relationship  
9 regarding transfer and licensing of DMT-based DSL silicon  
10 technology since 1998, first with Siemens, then with Lantiq as  
11 Siemens' assignee. Correct?

12 A. Yes.

13 Q. So in the agreement you are relying on, it's specifically  
14 referencing this long history of a relationship dating back to  
15 1998. Correct?

16 A. Yes.

17 Q. And that agreement's been replaced and modified over the  
18 years, hasn't it?

19 A. It -- well, this one that we have on the screen has not  
20 ever been amended.

21 Q. I understand. But from the initial relationship up until  
22 this agreement, there have been lots and lots of other  
23 agreements in between. Correct?

24 A. Yes. From the original 1998 first deal, there were lots  
25 of amendments until they got to the sort of complete new,

1 wipe-the-slate-clean in 2007.

2 Q. And so the agreement that you're relying on, number one,  
3 it's with a chip manufacturer. Correct?

4 A. Yes.

5 Q. CommScope is a DSL equipment manufacturer.

6 A. They are.

7 Q. There's a long relationship that dates back to 1998 with  
8 Siemens. Correct?

9 A. There was a long -- yes, I agree with that.

10 Q. And at your hypothetical negotiation, there is no  
11 relationship with CommScope. Correct?

12 A. Correct.

13 Q. And at the table that you showed in your slides,  
14 CommScope's not asking to be a partner with Aware, are they?

15 A. They are not.

16 Q. They're not asking to work together with Aware to develop  
17 or design any technology. Correct?

18 A. Correct.

19 Q. And they're only asking for a U.S. license. Correct?

20 A. That's true.

21 Q. Okay.

22 MR. DAVIS: You can take this down, Mr. Diaz. Thank  
23 you. Could you pull up Exhibit 118, please, Mr. Diaz?

24 Q. (BY MR. DAVIS) Are you familiar with this spreadsheet,  
25 Doctor Becker? If you don't recognize it, I'll tell you

1 this -- I'm sorry. Go ahead.

2 A. Yeah. Can you give me some context?

3 Q. Yeah. So this is one of the many spreadsheets that  
4 CommScope produced in this case related to its financial data,  
5 its sales data.

6 A. Yes. It's likely a similar sheet, if not the sheet, that  
7 I used to build my royalty base from.

8 Q. Okay. And we had to get this data through this lawsuit.  
9 You understand that?

10 A. Oh, yeah.

11 Q. Especially down here at the bottom where it says,  
12 worldwide sales. Do you see that?

13 A. I'm not sure what you mean especially. Certainly all the  
14 information in a transmittal like this is confidential.

15 Q. And CommScope didn't provide this information to us as  
16 part of the negotiations between TQ Delta and CommScope. You  
17 understand that from the testimony in court. Correct?

18 A. That's correct.

19 Q. And it's got U.S. sales and international sales and units  
20 for all the -- all the data. Correct?

21 A. Yes.

22 Q. This is all the data that TQ Delta has been requesting  
23 for 10 years to be able to analyze and have negotiations with  
24 CommScope. Do you understand that?

25 A. Generally, yes.

1 Q. Okay.

2 MR. DAVIS: You can pull this down, please, Mr.  
3 Diaz, and pull up Exhibit 41.

4 Q. (BY MR. DAVIS) And, by the way, you relied on Exhibit  
5 118 in your analysis, didn't you, for your report?

6 A. As I said, likely the royalty base schedules of sales and  
7 revenues and things were based on that. It looks like it's  
8 the source.

9 Q. Okay. And this is another spreadsheet of financial  
10 information that CommScope produced in this case, isn't it?

11 A. I can't even tell that it's financial information unless  
12 you scroll all the way to the left so I can see the --

13 Q. Okay. Do you recognize any of these chip model numbers  
14 over here on the left?

15 A. I do. Well, those aren't chip models.

16 Q. I'm sorry.

17 A. Those are modem models.

18 Q. Modem models. Correct.

19 MR. DAVIS: Thank you, Mr. Diaz. You can pull that  
20 down. Now, can I go back to Exhibit 65, please, Mr. Diaz?

21 Q. (BY MR. DAVIS) And I believe in your direct examination,  
22 Doctor Becker --

23 MR. DAVIS: Actually, could I have slide 21 from  
24 Defendants' presentation?

25 Q. (BY MR. DAVIS) You showed this slide to the jury.



1 Correct, Doctor Becker?

2 A. Yes.

3 Q. This is your slide, isn't it?

4 A. It is my slide.

5 Q. And you told the jury that DSL product means integrated  
6 circuit. Correct?

7 A. Yes.

8 Q. An integrated circuit that implements one or more xDSL  
9 standards. Is that right?

10 A. Yes.

11 Q. And then you pointed them to the language down here below  
12 where it says, "In the event a DSL product is sold as part of  
13 a product offering that includes additional DSL products or  
14 other components, such as but not limited to the chipset as  
15 fully defined below, then the net sales price shall be the net  
16 sales price of the DSL product sold on a stand-alone  
17 basis." That's the language you highlighted. Correct?

18 A. It is.

19 Q. And you are relying on this language in the contract for  
20 your contention that the value of the DSL modem should be  
21 reduced down to the chip, aren't you?

22 A. The -- I guess I'm not understanding the question.

23 Q. You're relying on this language, aren't you, as part of  
24 your damages analysis, to take the price or the cost of the  
25 chip to then apply a royalty to. Correct?

1 A. Yes, that to apply the royalty rates or any rate that's  
2 derived from that schedule of 6 percent declining to 1 percent  
3 or whatever in this agreement, when you're going to apply it,  
4 you need to know what you're going to apply it to. And in  
5 this agreement, what you apply it to is either the selling  
6 price of a stand-alone DSL chip, or if it's something bigger  
7 than that, an estimate or allocation down to the DSL portion.

8 I'm relying on this language and other language in the  
9 agreement to tell me that is the base against which those  
10 percentages apply.

11 Q. Because if you can apply it to the chip, the pie is a lot  
12 smaller than if you apply it to the whole box. Correct?

13 A. Oh, absolutely.

14 Q. Because the whole box costs about \$95.

15 A. Correct.

16 Q. And the chip's a lot less than that, isn't it?

17 A. The chip -- these chips are, yeah, \$20 -- \$15 to \$20 of  
18 the cost of goods in the whole box.

19 Q. Uh-huh. So that will make a big difference in terms of  
20 how your royalty calculation comes out, the ultimate number of  
21 it. Right?

22 A. Well, if you're suggesting it would make a big difference  
23 to use \$95 instead of \$15 mathematically, yes, but you would  
24 never do that. If you were going to use the selling price of  
25 the box, you'd have to do the apportionment over on the right

1 side.

2 Q. But you understand that if you were to plug the \$95 for  
3 the box into your equation, into your calculation, that number  
4 is much, much higher, isn't it?

5 A. Oh, mathematically, sure. It wouldn't make any sense,  
6 but you could mathematically do that.

7 Q. And as far as I understood your testimony on direct,  
8 you're saying that because of this language, additional DSL  
9 products or other components, the net sales price shall be the  
10 net sales price of the DSL product on a stand-alone basis.  
11 Correct?

12 A. This language and other evidence. It's not exclusively  
13 this language.

14 Q. But you would agree with me that a DSL product is only  
15 the integrated circuit. Right?

16 A. Yes.

17 Q. Okay. So the DSL product that you're supposed to use is  
18 the integrated circuit in this agreement. Right?

19 A. That defined term that is being used to get to the  
20 royalty base is capital D, capital P, DSL product.

21 Q. And the only way that you can exclude the price of the  
22 box, the whole DSL modem, is because you're relying on this  
23 language--in the event a DSL product is sold as part of a  
24 product offering that includes additional DSL products or  
25 other components. Correct?

1 A. It's not exclusively that language. I mean, I -- this --  
2 this language is part of the logic that gets me to the base,  
3 but if we didn't have that language at all, the need to  
4 apportion and make these agreements comparable, I would still  
5 have the same calculation.

6 Q. So even if this -- even if you took this language out,  
7 you would still come up with another way to get the number  
8 down back to where you think it should be. Is that what  
9 you're --

10 A. Well, it's not back to where I think it should be. I  
11 would -- there would be other ways to make a license to  
12 CommScope economically equivalent to the terms of this  
13 agreement.

14 Q. But you agree with me, don't you, sir, that the DSL  
15 product, the product that is licensed under this agreement, is  
16 only the integrated circuit. Correct?

17 A. The product that is the basis of the royalty calculation  
18 is only the integrated circuit.

19 Q. Okay. But the only thing that was licensed to  
20 Aware -- I'm sorry, to Lantiq was the circuit. Right? If  
21 Lantiq sells its chip, is that what -- is that your testimony,  
22 sir, that the chipset is also the way that you get to a  
23 license for the whole box?

24 A. Well, I guess I'm -- I'd want to see the grant clause. I  
25 think they're granting them the rights to sell DSL products

1 and not limiting it to stand-alone DSL products. But the  
2 right that they need and the right that I think they get is  
3 the right to sell products that include DSL products.

4 Q. I -- you would agree with me, sir, that in the event a  
5 DSL product is sold as part of a product offering that  
6 includes additional DSL products or other components, then the  
7 net sales price shall be the net sales price of the DSL  
8 products sold on a stand-alone basis. That's what this  
9 agreement says. Correct?

10 A. That's correct.

11 Q. Okay.

12 MR. DAVIS: You can pull that down, please, Mr.  
13 Diaz.

14 Q. (BY MR. DAVIS) Now, the smallest saleable  
15 patent-practicing unit you've testified in this case is the  
16 DSL chip. Correct?

17 A. Yes.

18 Q. And you understand what it means for something to be  
19 patent practicing. Correct?

20 A. Yes.

21 Q. It means that it infringes a claim. Right?

22 A. Well, or that -- yeah, that it -- that it -- it has all  
23 of elements of a particular claim.

24 Q. All the elements.

25 A. Yes.

1 Q. It's essentially an infringement analysis, isn't it?

2 A. It can be, yes, or -- well, I mean, the smallest saleable  
3 patent-practicing unit sometimes is, because of the saleable  
4 part of it, you end up with something that's more than where  
5 you find the inventive elements of the patent. So it's  
6 not -- it doesn't get you just to the footprint of the claims.

7 Q. Well, in order to practice a patent, you have to satisfy  
8 all the elements of a claim, don't you?

9 A. Yes.

10 Q. And the smallest saleable patent-practicing unit,  
11 whatever that unit is, will necessarily use every element of  
12 the claims. Correct?

13 A. I think that's true, yes.

14 Q. And it's your testimony that the chip is the smallest  
15 saleable patent-practicing unit. Correct?

16 A. Well, it's -- that was the understanding that I gained  
17 from CommScope's technical experts. I don't have the ability  
18 to make that analysis on my own. Ultimately, it doesn't  
19 really drive the result that I get, but I certainly believe  
20 and wrote in my report that, based on CommScope's technical  
21 experts, they told me that all of the sort of inventive  
22 aspects of the patents that were being accused by TQ Delta's  
23 experts were found in the Broadcom chip.

24 Q. And they told you that in a phone call. Correct?

25 A. Multiple phone calls.

1 Q. Multiple phone calls. They didn't say anything about  
2 that in their expert reports, did they?

3 A. I don't recall whether they did.

4 Q. Well, you were here when they testified in trial.  
5 Correct?

6 A. Yes.

7 Q. And they didn't say anything about that in front of the  
8 jury, did they?

9 A. Correct.

10 Q. And so the only evidence you have in this case as to  
11 whether or not the chip is the smallest saleable  
12 patent-practicing unit, as you stated in your report, is from  
13 phone calls that happened out of this court and not in front  
14 of this jury. Isn't that a true statement, sir?

15 A. That is true.

16 Q. Don't you think the jury's entitled to hear the substance  
17 of that testimony to be able to gauge for themselves whether  
18 or not the chip as you say is really the smallest unit?

19 A. No, that -- well, I mean, that -- that -- that testimony  
20 or potential testimony about the smallest saleable  
21 patent-practicing unit might have been relevant if I was  
22 depending on that smallest saleable patent-practicing unit  
23 conclusion for my conclusion that the Aware/Lantiq and  
24 Aware/Infineon agreements were the most comparable and would  
25 serve as the basis for my royalty, but that -- it -- it

1 doesn't. I don't need the smallest saleable patent-practicing  
2 unit conclusion to reach the conclusion that the Aware  
3 licenses are relevant. And so there was no need to spend time  
4 with that in my testimony because it's not indicative or  
5 determinative of the conclusions I reach.

6 MR. DAVIS: I pass the witness, Your Honor.

7 THE COURT: All right. Is there redirect?

8 MR. DACUS: Please, Your Honor.

9 THE COURT: All right. Let's proceed with redirect.

10 MR. DACUS: May I proceed, Your Honor?

11 THE COURT: You may proceed.

12 MR. DACUS: Thank you.

13 REDIRECT EXAMINATION

14 BY MR. DACUS:

15 Q. Let's pick up right there, Doctor Becker. Whether or not  
16 the chip, the semiconductor chip, is the smallest saleable  
17 patent-practicing unit, does that affect your conclusions and  
18 analysis in this case in any way or change what you've told  
19 the jury?

20 A. No.

21 Q. So what you've told the jury remains the same, despite  
22 the questions Mr. Davis just asked you.

23 A. Correct.

24 Q. Okay. Now, you mentioned the concept of apportionment a  
25 couple of times. Do you remember that?



1 A. Yes.

2 Q. And Mr. Davis suggested that perhaps it would be  
3 appropriate to use the \$95 sales price of these CPE boxes. Do  
4 you remember that?

5 A. Correct.

6 Q. Do you think that would be appropriate?

7 A. Absolutely not.

8 Q. And please tell the jury why.

9 A. Well, the -- the boxes, like one of the ones that we have  
10 the picture of is actually the box that I have sitting next to  
11 my television at home. It's -- was an ARRIS, now CommScope  
12 modem.

13 There's a lot more in that box than DSL. It -- I don't  
14 even have DSL, and that's the box that AT&T gave me. I have  
15 fiber. I have an in-home network that has the little plugs on  
16 the back. I can plug my printer in and my Apple TV into it,  
17 so it's got those ethernet ports. It has WiFi; it gives me  
18 the wireless in my house. Those things don't have anything to  
19 do with the patents in this case. And the concept of  
20 apportionment says you only need to be compensated for the  
21 claimed invention.

22 And if you took 6 percent and 3 percent of the selling  
23 price of the CommScope of that whole modem, you'd be giving a  
24 royalty on WiFi and ethernet and all the -- and fiber and all  
25 the other things that this box does. So you have to get down

1 to just the DSL portion.

2 Q. I want to make sure we're -- I'm clear here. What we're  
3 supposed to be doing, what you and the jury are supposed to be  
4 doing, is valuing the features and the functions in the  
5 patents. Correct?

6 A. Yes.

7 Q. And are you saying, because I don't think it's been said  
8 in this case before, that the CPE boxes that we're talking  
9 about, those actually have, for example, WiFi feature?

10 A. I think certainly most of --

11 THE COURT: Mr. Dacus, what you think's been said in  
12 this case before is not appropriate.

13 MR. DACUS: Understood, Your Honor.

14 THE COURT: Avoid those kind of comments.

15 MR. DACUS: I will.

16 THE COURT: Restate the question without the sidebar  
17 comment.

18 MR. DACUS: Happy to, Your Honor. Thank you.

19 Q. (BY MR. DACUS) Does the CPE boxes that we're talking  
20 about, do those contain WiFi functionality?

21 A. Yes.

22 Q. Do they contain the ability to connect to fiber?

23 A. Yes, most of them. I can't say all of them. I know the  
24 two largest volume ones that are the vast majority of the  
25 boxes in this do contain the ability to terminate fiber as

1 well.

2 Q. Do they contain other features and functions that are  
3 unrelated to the patents?

4 A. Yes, most -- I mean, a significant portion of those boxes  
5 do stuff other than the DSL termination and provide the DSL  
6 connection.

7 MR. DACUS: Can you pull up, Mr. Carrillo, I think  
8 it's slide 10 in our deck? Thank you.

9 Q. (BY MR. DACUS) You remember Mr. Davis' questions about  
10 whether or not TQ Delta should be sitting in this hypothetical  
11 negotiation chair?

12 A. Yes.

13 Q. Would that be appropriate or not appropriate?

14 A. Not appropriate.

15 Q. And why?

16 A. Well, they're not the patent holder at the time of the  
17 negotiation. And so what this whole hypothetical negotiation  
18 construct says is put the patent owner who would have been the  
19 party negotiating the license at the table.

20 Q. And you remember Mr. Davis said that the person sitting  
21 at the table would be Michael Tzannes. Correct?

22 A. Yes.

23 Q. And he referenced you to some of Mr. Tzannes' testimony  
24 in this case. Correct?

25 A. Yes.

1 Q. Were you here when Mr. Tzannes testified that he is a  
2 litigation or lawsuit consultant for TQ Delta?

3 A. Yes.

4 Q. And do you remember the amount of money that the  
5 Tzannesses have been paid per year for the last 10 years by TQ  
6 Delta?

7 A. I do.

8 Q. And what was it?

9 A. I recall 800,000 a year for the last 10 years.

10 Q. And 800,000 times 10 is what, sir?

11 A. 8 million.

12 Q. Do you remember that Mr. Davis suggested that, sitting in  
13 the hypothetical negotiation chair, you can look forward and  
14 see if there were any licenses with CPE manufacturers. Do you  
15 remember that?

16 A. Yes.

17 Q. And he suggested -- do you agree that that's the proper  
18 thing to do?

19 A. It -- I mean, it can be if you -- if the only way you can  
20 get any information, you know, would be to look forward. But  
21 in my opinion, we don't have to because we have market  
22 information from right around that time.

23 Q. But can you assume with me -- let's assume Mr. Davis is  
24 correct, that the patent owner Mr. Tzannes is sitting in this  
25 chair and he can look forward and see what a license with a

1 CPE manufacturer would look like in the future. Can you make  
2 that --

3 A. Yes.

4 Q. -- hypothetical with me?

5 A. Yes.

6 Q. What would Mr. Tzannes see? For example, with respect to  
7 the ZyXEL license?

8 A. Well, with respect to ZyXEL, he would see that that CPE  
9 maker who's CommScope's largest competitor got a license,  
10 worldwide license, that granted it rights to make as  
11 many -- an unlimited number of boxes and make and sell an  
12 unlimited number of boxes for the life of the entire patent  
13 portfolio for \$8.9 million.

14 Q. So was your understanding the same as mine that Mr. Davis  
15 was suggesting that this would be a relevant consideration  
16 when Aware is sitting at the hypothetical negotiation?

17 A. He certainly seemed to be suggesting that it was  
18 relevant.

19 Q. And so what Aware would know in negotiating is that a  
20 license for the largest competitor is \$8.9 million for 100  
21 patents. Correct?

22 A. At least a hundred. It's more than that, and it's  
23 worldwide.

24 Q. Worldwide. And for an unlimited number of products.  
25 Correct?

1 A. Yes.

2 Q. Do you think that would support the people over here  
3 saying, yeah, we'll pay you 89 million --

4 A. No.

5 Q. -- for 36 million units? Would that make any economic  
6 sense to you at all?

7 A. No. And particularly given that that \$89 million would  
8 be for only seven of the patents.

9 Q. Was your understanding from what Mr. Davis asked you  
10 about this negotiation that perhaps licensing to chip  
11 manufacturers was not the way it should be done but, rather,  
12 licensing to CPE manufacturers?

13 A. I took his questions to imply or mean that somehow you  
14 could have a radically different outcome if you were sitting  
15 across the table from a CPE maker, but I don't think  
16 economically the outcome really should be any different  
17 because the chips just go straight into a CPE modem.

18 Q. Is it appropriate under economic analysis and what the  
19 jury's doing to look and see what happened in the real world?

20 A. Yes.

21 Q. Aware owned these patents for how long, sir?

22 A. Well, they owned them for at least a decade.

23 Q. In that entire decade, in this case, have you seen any  
24 evidence that Aware, the owner of the patents, ever got a  
25 license from a CPE manufacturer like CommScope?

1 A. No.

2 Q. Who did Aware license?

3 A. They licensed the -- the chip makers who were making the  
4 DSL chips that went into the boxes. It's, you know, not  
5 unlike if you had a patent on tires and instead of -- you  
6 know, you could license Bridgestone and Michelin and the  
7 people that make tires, and then -- then you're done, and you  
8 know that those tires are going to go on cars.

9 If you go to a car maker to get your license for your  
10 patent on your tire, economically you wouldn't really expect  
11 to get anything different than you would if you were given the  
12 license to Michelin or Goodyear or Firestone.

13 MR. DACUS: We can take that down, please, Mr.  
14 Carrillo. Thank you.

15 Q. (BY MR. DACUS) You were asked some questions about this  
16 Nokia license. Do you remember that, sir?

17 A. Yes.

18 Q. And you -- in the course of your work, do you know that  
19 there were two agreements signed on the same day as it relates  
20 to Nokia and TQ Delta?

21 A. I do.

22 Q. And in your opinion, were those two agreements  
23 effectively a worldwide license?

24 A. They absolutely were effectively a worldwide license  
25 for all of the Nokia worldwide units, at least up to, say,

1 2022.

2 Q. Have you read both of those agreements?

3 A. I have.

4 Q. Do you know they were signed on the same day?

5 A. Yes.

6 Q. Okay.

7 MR. DACUS: Mr. Carrillo, can you pull up Exhibit  
8 76, please?

9 Q. (BY MR. DACUS) Do you recognize Exhibit 76 as a  
10 PowerPoint or information that TQ Delta supplied to Nokia  
11 during their licensing discussions?

12 A. Yes.

13 Q. And do you remember that Mr. Bernstein testified today by  
14 video deposition about this document?

15 A. He did.

16 Q. Okay.

17 MR. DACUS: If you would go to page 3, Mr. Carrillo.

18 Q. (BY MR. DACUS) You remember the discussion I had with  
19 Doctor Putnam about whether or not the real number of units  
20 was the 5.9, approximately 6 million, units that he used  
21 versus a much higher number like 89 million? Do you remember  
22 that discussion?

23 A. Yes.

24 MR. DACUS: Ms. Brunson, may I have the --

25 Q. (BY MR. DACUS) And that, of course, matters because you



1 remember what Doctor Putnam said is, at least his opinion was,  
2 the royalty per unit is \$2.52. Correct?

3 A. Yes. That's what he -- he said that the effective rate  
4 per unit was \$2.52.

5 Q. And do you remember what he said the number of units  
6 were?

7 A. He assumed 5.9 million units.

8 MR. DACUS: If we can go back to Exhibit 76, Ms.  
9 Brunson. Thank you.

10 Q. (BY MR. DACUS) This is a document you've seen before.  
11 Correct, sir?

12 A. Yes.

13 Q. Does this identify the number of units that Nokia had  
14 that were being effectively licensed under those two  
15 agreements?

16 A. Yes.

17 Q. And does it include the VDSL types of products?

18 A. Yeah, the second block there has VDSL products.

19 Q. Okay.

20 MR. DACUS: So we need to see the whole thing, Mr.  
21 Carrillo, for now.

22 Q. (BY MR. DACUS) So this is for the years 2013 through  
23 2020. Is that correct?

24 A. Yes.

25 Q. And so -- I don't know if we can do it on the fly, but

1 all these units were effectively licensed, a number of them.

2 Correct? For each year?

3 A. Yes.

4 Q. And do you know approximately what that number is?

5 A. I'm just ballparking it here, but I want to say about 140  
6 million.

7 Q. Okay. 140 million. Is that right?

8 A. Yes.

9 Q. And you remember I asked Ms. Divine and Doctor Putnam  
10 about an \$89 million number. Do you remember that?

11 A. Yes.

12 Q. And if we added up these numbers just for Europe, that's  
13 where the 80-something million comes from. Correct?

14 A. Yes.

15 Q. So rather than 5.9 million products that were effectively  
16 licensed, is the number actually closer to 140 million?

17 A. It is.

18 Q. And did you hear me ask Doctor Putnam what the rate would  
19 be if we added in those additional units?

20 A. Yes.

21 Q. And what did he say?

22 A. I think it came out to something like 14 cents a unit, if  
23 my memory serves me.

24 Q. I think he might have said 17 cents.

25 A. 17, yeah. It's under 20.

1 Q. In your opinion, if we were going to calculate the  
2 per-unit royalty for -- that Nokia paid on that 14.9 million  
3 number, what would be the more appropriate number of units to  
4 use?

5 A. Economically, you absolutely have to include all of the  
6 non-U.S. units that were effectively licensed or certainly  
7 taken out of consideration for any royalty that would ever be  
8 paid in the future, and all of those units need to be in the  
9 effective rate calculation.

10 MR. DACUS: You can take that down. And can you put  
11 that up, Mr. Carrillo?

12 Q. (BY MR. DACUS) You understand this is a presentation  
13 that TQ Delta made to Nokia. Correct?

14 A. Yes.

15 Q. Have you been in the courtroom when there's been a lot of  
16 questions about whether or not CommScope gave TQ Delta  
17 information about sales and sales volumes?

18 A. Yes.

19 Q. Now, you know as someone in this industry that sales  
20 volume information, there are public databases that actually  
21 have that information. Correct?

22 A. For certain industries, and the DSL industry is one that  
23 has extensive public information about unit volumes and sales  
24 around the world.

25 Q. And this information that TQ Delta was giving to Nokia,

1 what was the source of that information?

2 A. Those third-party research reports that you can buy.  
3 Anybody can buy them.

4 Q. Does it indeed say that in this document?

5 A. Yes.

6 Q. So the complaints by TQ Delta of we haven't had sales  
7 information for the better part of eight years, do you think  
8 that's a valid complaint?

9 A. No.

10 Q. And why?

11 A. Well, you can get pretty reasonable estimates of unit  
12 volumes of products in some industries, like in the cell phone  
13 industry, in the DSL industry. You can go buy research  
14 reports that will tell you what the unit sales are.

15 And as we can see here, they were -- TQ Delta went and  
16 got unit volumes by region, not down to the country but by  
17 region, for specific enough to be able to see ADSL different  
18 from VDSL.

19 MR. DACUS: We can pull that down, Mr. Carrillo.  
20 Thank you.

21 Q. (BY MR. DACUS) There were some questions about revenue  
22 generated by CommScope sales. Do you remember those?

23 A. Yes.

24 Q. Is there a difference between revenue and profit?

25 A. Yes.

1 Q. In this industry, is there a big difference between  
2 revenue and profit?

3 A. Yes. In particular, I think we've heard testimony from a  
4 number of witnesses that people have been getting out of this  
5 business because it's just not really very profitable, and we  
6 heard testimony about the profitability of these products.

7 Q. One question that Mr. Davis asked you related to the  
8 number of units in this lawsuit. Do you remember that?

9 A. Yes.

10 Q. And he said something about there's 36 million units. Do  
11 you remember that?

12 A. Yes.

13 Q. And your calculation had 25 million units.

14 A. It does.

15 Q. Can you explain to the jury why?

16 A. So the units that I've -- well, I've taken into account  
17 all of the units that were sold by CommScope from starting in  
18 November of 2008 all the way through to 2022 as part of that  
19 license that I say they would have gotten.

20 The statute of limitations on when the damages period  
21 starts is August of 2015. So I've got sitting behind that all  
22 of the unit volumes running from 2008 all the way through to  
23 2022, and I'm picking up the sales that CommScope made that  
24 are accused to be infringing from August of 2015 to June of  
25 2022. That's 25 million.

1           The 36 million, Doctor Putnam went back in time, I think,  
2     five years prior to August of 2015, and picked up additional  
3     units that I understand TQ Delta has a claim that they're  
4     saying those should be compensated as well.

5     Q.    Do you think those 11 million difference in units, is  
6     that something that CommScope would have paid for at a  
7     hypothetical negotiation?

8     A.    Not -- in the hypothetical negotiation, the license that  
9     they would have gotten, the nature of that license would not  
10    have required them to pay the additional monies that Doctor  
11    Putnam is including in that portion of his analysis.

12    Q.    And why not?

13    A.    Because, as I understand the claim, those arise out of  
14    AT&T's use of the boxes, of these modems. In periods after  
15    August of 2015, the allegation I guess is that AT&T is using  
16    those boxes and maybe that creates some kind of infringement.

17           But even if that's accepted as true, the sale by  
18    CommScope of that box that's in the 11 million occurred prior  
19    to August of 2015 and is fully licensed. And the nature of  
20    that license, you don't owe an additional amount of money when  
21    your customer plugs it in and turns it on and uses it.

22    Q.    Did you take that into consideration in your analysis in  
23    this case?

24    A.    I certainly took all those prior units into -- into  
25    consideration, and I don't think they're appropriate to

1 include in these damages.

2 Q. Thank you, Doctor Becker.

3 MR. DACUS: That's all I have, Your Honor. I pass  
4 the witness.

5 THE COURT: Is there additional cross-examination?

6 MR. DAVIS: Yes, Your Honor.

7 THE COURT: While we're transitioning, Mr. Wauters,  
8 you need to come sit at the counsel table. You're the  
9 corporate representative. You're the party in this case. You  
10 don't need to be in the back of the room.

11 MR. WAUTERS: Yes, Your Honor.

12 THE COURT: Thank you.

13 All right, Mr. Davis. Proceed with additional  
14 cross-examination.

15 MR. DAVIS: Thank you, Your Honor.

16 RECROSS EXAMINATION

17 BY MR. DAVIS:

18 Q. Doctor Becker, you understand the Nokia license agreement  
19 is for U.S. only. Correct?

20 A. If you look only at that document, the grant in  
21 the -- it's called document A of A and B that were signed the  
22 same day, the license is only for the U.S.

23 Q. The license agreement is only for the U.S. Correct, sir?

24 A. Yes.

25 Q. And it's your testimony, isn't it, as I heard you on

1 redirect, that somehow through the stand-still agreement the  
2 rest of the world is effectively licensed?

3 A. Absolutely it is.

4 Q. Okay.

5 A. At least through 2020.

6 Q. And you understand that in other parts of the world, the  
7 statute of limitations for patent infringement can go back as  
8 much as 20 years?

9 A. Not in -- not in Europe where I think most of these units  
10 are.

11 Q. Well, it varies from country to country. But you don't  
12 have any testimony, you have no testimony in your report, you  
13 had no testimony on direct, as to what the statute of  
14 limitations is in the various countries in Europe. Correct?

15 A. Correct.

16 Q. And you're not an expert on European patent law, are you?

17 A. Well, I'm not certainly considered -- I've had to  
18 consider worldwide licenses and the effect of patent rules in  
19 Europe many times. So I'm aware of -- I know, for example,  
20 what the statute of limitations is in Germany versus France  
21 versus the UK. I don't think it's relevant to the  
22 determination of whether that Nokia license effectively  
23 licensed all those other units, but I know those things.

24 Q. Okay. But as far as the agreement itself, it is a  
25 stand-still agreement; it's not a license. Correct?



1 A. That's the nature of the way they took care of those  
2 products.

3 MR. DAVIS: I pass the witness, Your Honor.

4 THE COURT: All right. Further direct, Mr. Dacus?

5 MR. DACUS: No, Your Honor. Thank you. May Doctor  
6 Becker be excused, Your Honor?

7 THE COURT: Well, let me get him off the witness  
8 stand first.

9 You may step down, Doctor Becker. And, yes, you are  
10 excused. You're free to stay; you're free to leave.

11 THE WITNESS: Thank you.

12 THE COURT: All right. Defendants, call your next  
13 witness.

14 MR. BARTON: Your Honor, at this point the  
15 Defendants rest their case in chief and rebuttal case.

16 THE COURT: All right. Defendants have rested their  
17 case in chief.

18 Does the Plaintiff have rebuttal witnesses to call?

19 MR. DAVIS: Yes, Your Honor, we do.

20 THE COURT: Call your first rebuttal witness.

21 MR. DAVIS: Your Honor, Plaintiffs call Dr. Vijay  
22 Madisetti to the stand.

23 THE COURT: All right. Doctor Madisetti, if you'll  
24 return to the witness stand.

25 I remind you, sir, you remain under oath.

1 Have a seat.

2 MR. CHIPLUNKAR: May I approach?

3 THE COURT: You may.

4 If you'll hand those to the Court Security Officer,  
5 please.

6 You may proceed with direct when you're ready,  
7 Mr. Chiplunkar.

8 MR. CHIPLUNKAR: Thank you, Your Honor.

9 VIJAY MADISETTI, Ph.D., PREVIOUSLY SWORN,  
10 having been previously sworn, testified further under oath as  
11 follows:

12 DIRECT EXAMINATION

13 BY MR. CHIPLUNKAR:

14 Q. Good afternoon, Doctor Madiseti.

15 A. Good afternoon.

16 Q. And why are you here today?

17 A. I'm here to opine on the validity of the TQ Delta  
18 patents, the '008 and '835.

19 Q. And what specific claims in the '008 Patent are you going  
20 to be addressing?

21 A. I'll be talking about claim 14.

22 Q. And what level of skill in the art have you applied in  
23 reaching your opinions regarding the validity of claim 14?

24 A. I've looked at both -- I applied both the -- both the  
25 parties' definitions that are shown on this particular slide,

1 and my opinions do not change with the application of either  
2 party's definitions.

3 Q. Now, do you apply the Court's claim construction in  
4 forming your opinions?

5 A. Yes, I did.

6 Q. With reference to claim 14, which reference did Doctor  
7 Cimini rely on for his invalidity opinions?

8 A. He just relied on one reference, which is Jones.

9 Q. Now, do you agree with Doctor Cimini's opinions regarding  
10 Jones?

11 A. I do not.

12 Q. And why not?

13 A. Because as I've shown on claim 14, there are at least two  
14 limitations, 14[c] and 14[e], where I believe Jones does not  
15 expressly or inherently disclose or render obvious these  
16 limitations.

17 Q. Now, with reference to obviousness in light of Jones, did  
18 Doctor Cimini provide any motivation whatsoever to modify  
19 Jones to render this claim obvious?

20 A. He did not.

21 Q. Now, since you have not marked 14[a], [b], [d], and [f],  
22 are you admitting that Jones discloses these limitations?

23 A. No, I don't make any such admissions. I just don't offer  
24 an opinion at this point because I have very limited time.

25 MR. CHIPLUNKAR: Mr. Diaz, if you could please pull

1 up Doctor Cimini's slide 48, please.

2 Q. (BY MR. CHIPLUNKAR) Now, were you here yesterday when  
3 they played the trial testimony of Doctor Cimini?

4 A. Yes.

5 Q. And did you see this slide from Doctor Cimini's  
6 presentation?

7 A. Yes.

8 Q. Now, do you agree with Doctor Cimini's opinion that Jones  
9 discloses element 14[c] of -- of the claim?

10 A. I do not.

11 MR. CHIPLUNKAR: You can pull that down.

12 Q. (BY MR. CHIPLUNKAR) And why not?

13 A. Because all Jones discloses is a series of values.  
14 There's no mention, there's no disclosure that it is a  
15 pseudorandomly generated value. So the series of values are  
16 not pseudorandomly generated values, so this limitation cannot  
17 be met.

18 Q. Okay. Now, what did Doctor Cimini actually admit  
19 regarding this claim element?

20 A. Yes. And then Doctor Cimini's trial testimony, as you  
21 can see on the slide, he has in response to the question that  
22 says, "Jones doesn't say one way or the other whether it is  
23 using a series pattern or a pseudorandom pattern. Correct?"

24 He admits, "That is correct." So he's speculating that  
25 it is a pseudorandom patent.

1 Q. So Doctor Cimini speculated regarding this claim element.  
2 Is that your testimony?

3 A. Yes, because he doesn't know one way or the other.

4 MR. CHIPLUNKAR: Mr. Diaz, if you could pull up  
5 Cimini's slide No. 55, please.

6 Q. (BY MR. CHIPLUNKAR) Now, with reference to limitation  
7 14[e], do you recall seeing this slide during Doctor Cimini's  
8 testimony?

9 A. Yes, sir.

10 Q. And do you agree with his opinion that Jones discloses  
11 element 14[e]?

12 A. Jones does not disclose this element as construed by the  
13 Court for the term starting with 'substantially scramble'.

14 MR. CHIPLUNKAR: Mr. Diaz, please pull down.

15 Q. (BY MR. CHIPLUNKAR) And why don't you agree with Doctor  
16 Cimini?

17 A. Yes. Because the Court has construed the 'substantially  
18 scrambled' phrase as producing a transmission signal with  
19 reduced peak to average power ratio, or PAR. And what Doctor  
20 Cimini has relied upon is not the transmission signal, but,  
21 instead, as I've shown in green, the received signal. So,  
22 therefore, that claim limitation 14[e] is also not met in  
23 Jones.

24 Q. Now, did Doctor Cimini carry out any simulations or any  
25 testing to try to establish or determine if Jones actually

1 reduces the PAR of the transmission signal?

2 A. He did not, and, in fact, he confirmed it during his  
3 testimony that he'd not performed any simulations. In  
4 response to the question if he did perform any simulation to  
5 determine the performance of the Jones system, he admitted he  
6 did not.

7 Q. Now, did Doctor Cimini show that Jones actually reduces  
8 PAR of the transmission signal?

9 A. He did not. And he has -- again, in his answer, he said  
10 that in response to the question "Having a high PAR at the  
11 headend receiver did not necessarily mean that there is a high  
12 PAR at any particular transmitter."

13 "Correct." He admitted that is true. And he speculates  
14 that it could happen. Therefore, this limitation is also not  
15 met.

16 Q. Okay. To conclude, Doctor Madisetti, in your opinion,  
17 has Doctor Cimini shown that claim 14 is invalid in view of  
18 Jones?

19 A. He has not because he has not shown at least these two  
20 elements are disclosed or rendered obvious.

21 Q. Okay. Can we move on to claim 10 of the '835 Patent,  
22 Professor?

23 A. Yes.

24 Q. Now, what level of skill in the art have you applied in  
25 reaching your opinions regarding this claim element?

1 A. I've construed both parties' definitions and I applied  
2 both. My opinions don't change with either party's  
3 definition.

4 Q. Now, were you here for the testimony of Mr. McNair  
5 yesterday?

6 A. Yes.

7 Q. Okay. And which references did Mr. McNair rely on for  
8 his invalidity opinions regarding claim 10?

9 A. He relied on two references. He relied on G.992.1 and  
10 also G.992.1 in view or combination with SC-060.

11 Q. Now, do you agree with Mr. McNair's opinions that G.992.1  
12 anticipates claim 10 or renders claim 10 obvious in view of  
13 SC-060?

14 A. I do not. I applied the Court's constructions and  
15 analyzed his opinions. They do not.

16 Q. Now, why not?

17 A. As you can see, G.992 does not disclose or render obvious  
18 limitations 8[c] -- at least limitations 8[c] and 8[g], and  
19 SC-060 does not render or disclose many different limitations  
20 including 8[c] and 8[g], with the exception of 8[b], which I  
21 do not offer an opinion on.

22 Q. Now, was Mr. McNair required to provide a motivation to  
23 combine SC-060 and G.992.1?

24 A. Yes.

25 Q. Did you hear him provide a motivation to combine these

1 two references?

2 A. No.

3 Q. Did you hear him utter the word motivation?

4 A. I don't think I heard it.

5 Q. Is there any motivation for a person of skill in the art  
6 to combine these references?

7 A. No.

8 Q. Now, do you agree with Mr. McNair's opinion that the  
9 DRA\_swap\_request in G.992.1 is a flag signal, as the Court  
10 construed that term?

11 A. I do not.

12 Q. And why not?

13 A. Because the DRS\_swap\_request is not a flag signal, as  
14 construed by the Court, because, as construed by the Court,  
15 the flag signal does not include an FEC codeword counter  
16 value, and the G.992.1 expressly discloses that the superframe  
17 reference number, SFR, is included in the DRA\_swap\_request,  
18 and the SFR is an FEC codeword counter for the mandatory  
19 values that are relied upon by Mr. McNair.

20 Q. Given that in your opinion the SFR is an FEC codeword  
21 counter, can the DRA\_swap\_request satisfy the negative portion  
22 of the Court's construction?

23 A. It cannot.

24 Q. Turning to element 8[g], did Mr. McNair establish that  
25 the switch occurs on an FEC codeword boundary?



1 A. He did not.

2 Q. And why not?

3 A. As G.992.1 shows and discloses clearly, it uses the word  
4 'identify around which superframe boundary'. It does not say  
5 'on'. It says 'around', and 'around' is not 'on'.

6 Q. In G.992.1, does the switch -- does it switch around a  
7 codeword boundary or around a superframe boundary?

8 A. It switches around a superframe boundary, not a codeword  
9 boundary.

10 Q. And, now, can switching around the superframe boundary  
11 meet this limitation of the claim?

12 A. It cannot.

13 Q. Now, does Mr. McNair admit that the swap doesn't occur on  
14 an FEC codeword boundary?

15 A. Yes. As we can see in his testimony in response to the  
16 question towards the bottom, "Okay. The swap or the switch  
17 doesn't occur on an FEC codeword boundary. Correct?"

18 "'No' was your answer."

19 Mr. McNair confirms, "That's what I said."

20 So Mr. McNair confirms that the switch does not occur on  
21 an FEC codeword boundary as required by the claim.

22 Q. Let's switch to SC-060 now. Does SC-060 disclose a flag  
23 signal, as that term was construed by the Court?

24 A. No.

25 Q. Why not?

1 A. Because the Court's construction requires that it has to  
2 indicate an updated FIP setting. There's no disclosure of a  
3 FIP setting in SC-060; so, therefore, it cannot be a flag  
4 signal.

5 Q. Now, can a signal that is not used to change FIP settings  
6 meet the Court's construction of 'flag signal'?

7 A. No.

8 Q. In your opinion, would a person of ordinary skill in the  
9 art combine G.992.1 with SC-060?

10 A. No. There's no motivation to combine because G.992 has  
11 its own solution. Second, there's no success -- in the  
12 potential chance of success in such a combination because the  
13 G.992.1 in the section that I've shown here says that the  
14 second set of parameters indicate how many symbols before and  
15 after that are superframe boundary, there is a high chance of  
16 corruption of data. And corruption of data will result in an  
17 inoperable device.

18 Q. Now, would a person of ordinary skill in the art put two  
19 devices together if it would result in an inoperable device?

20 A. Without a chance of success, they wouldn't. They  
21 wouldn't be motivated to do that.

22 Q. Now, in your opinion, would a person of ordinary skill in  
23 the art use SC-060 sync symbol of flag with G992.1's DRA  
24 mechanism?

25 A. They would not because in Section 2.6 from the G.992 on

1 page 233, I believe, confirms that during the swap the sync  
2 symbols may be corrupted, so this means that the transmitter  
3 and the receiver cannot work together and the system would  
4 fail.

5 Q. Now, was SC-060 mature enough to be used with G.992.1 to  
6 effectuate change in FIP settings?

7 A. It was not. It actually discloses that it was just a  
8 study, it required further study, and it also admits that  
9 there are complex interactions within the ADSL system, so it  
10 is just a proposal for further study. It does not represent a  
11 mature or a working system, to the best of my knowledge.

12 Q. So, in conclusion, has Mr. McNair established that claim  
13 10 is invalid in view of G.992.1 and SC-060?

14 A. He has not for the reasons that are disclosed, that I  
15 just testified about.

16 Q. Now, you were in the courtroom yesterday. Right?

17 A. Yes.

18 Q. And you heard them play the testimony of several  
19 inventors and Mr. Cassiers from Broadcom?

20 A. Yes.

21 Q. Now, was Mr. Cassiers' testimony relevant to any  
22 CommScope products relevant in this case?

23 A. No. He was testifying only about central office.

24 MR. STEVENS: Your Honor, I object. That's beyond  
25 the scope of his report.

1 THE COURT: Do you have a response, counsel?

2 MR. CHIPLUNKAR: He just wants to make clear that  
3 nothing that Mr. Cassiers said affects any of his invalidity  
4 opinions.

5 THE COURT: Is that contained within his report? Do  
6 you have some support or authority for that?

7 MR. CHIPLUNKAR: I don't believe so, Your Honor.

8 THE COURT: All right. I'll sustain the objection.  
9 Let's continue.

10 Q. (BY MR. CHIPLUNKAR) So, to conclude, Professor  
11 Madisetti, in your opinion, has Doctor Cimini established  
12 that claim 14 of the '008 Patent is invalid?

13 A. He has not.

14 Q. And has Mr. McNair established that claim 10 of the '835  
15 Patent is invalid?

16 A. He has not.

17 MR. CHIPLUNKAR: I pass the witness, Your Honor.

18 THE COURT: Thank you.

19 Is there cross examination?

20 MR. STEVENS: There is, Your Honor.

21 THE COURT: Let's proceed with cross examination by  
22 the Defendants.

23 MR. STEVENS: May I proceed, Your Honor?

24 THE COURT: You may proceed.

25 MR. STEVENS: Thank you.

CROSS EXAMINATION

BY MR. STEVENS:

Q. Doctor Madisetti, you understand ultimately it's the jury's decision as to whether the patent is invalid. Is that correct?

A. Yes.

Q. Okay. And with respect -- I'm going to take the two patents out of order. I want to talk about the '835 Patent first, and then we'll come back and talk about the '008. Is that acceptable?

A. Yes.

Q. You understand that it's CommScope's contention that the G.992.1 standard -- and that's also known as the ADSL standard. Is that right?

A. Yes.

Q. And that dates back to 1999. Is that right?

A. I don't know the exact date, counsel.

Q. It's several years before Mr. Tzannes or Aware ever went to the Patent Office with the application that led to the '835 Patent. Is that fair?

A. Again, I cannot offer an opinion on the dates.

Q. Okay. You're not suggesting that ADSL came after this patent application, are you?

A. Again, I don't offer an opinion on the dates, counsel. I'm just offering technical opinions.

1 Q. Okay. And while we're talking about opinions that you're  
2 not offering, sir, I heard -- let me withdraw that.

3 MR. STEVENS: If I could have the document camera,  
4 please.

5 Q. (BY MR. STEVENS) So one of the things that you  
6 understand is that it's CommScope's contention that this ADSL  
7 or G.992.1, that reference anticipates the claim of the '835  
8 Patent. You understand that's our contention. Right?

9 A. Again, I didn't hear the word 'anticipate' from Doctor  
10 -- from Mr. McNair's testimony, so I cannot confirm that, but  
11 in my opinion it neither anticipates nor renders obvious.

12 Q. You understand that it's CommScope's contention that all  
13 of the concepts found in claim 10 of the '835 Patent, all of  
14 those were in the ADSL standard. You understand that that's  
15 our contention. Correct?

16 A. Yes. At high level, yes.

17 Q. Okay. And I think I heard you talking with your counsel,  
18 for all these boxes that you haven't put an X into, you're not  
19 saying they're there, you're not saying they're not, you just  
20 -- you have offered no opinion whatsoever. Is that right?

21 A. I do not offer an opinion at this point.

22 Q. Okay. So, for example, if we read 8[a] right there at  
23 the top "an apparatus configurable to adapt forward error  
24 correction and interleaver parameter, FIP, settings during  
25 steady-state communication or initialization," you're not here

1 to say -- you're not here to contest what we say that that was  
2 disclosed in the ADSL. Is that correct, sir?

3 A. As I said, counsel, I'm not offering an opinion on that  
4 issue.

5 Q. Okay. This is slide 16 of what you presented just a  
6 minutes ago. Do I have that right, sir?

7 A. Yes, sir.

8 Q. And one of the things that you are saying is that the  
9 swap request you believe is not a codeword boundary. Is that  
10 correct? That's your opinion?

11 A. Could you please repeat the question, counsel?

12 Q. One of the things I thought I heard you say is the swap  
13 request does not occur on a codeword boundary. Did you say  
14 that earlier, or did I mishear you?

15 A. I said, number one, that the specification of the 992.1  
16 says that it is 'around'; it does not even use the word 'on'.

17 Q. Okay.

18 A. That's one of the reasons.

19 Q. Understood. And the highlighting on this page is yours.  
20 Is that correct, sir?

21 A. Yes.

22 Q. All right. And I want to read the next sentence and I  
23 want you to tell me if I read it correctly. Is that fair,  
24 sir?

25 A. Okay.

1 Q. So the sentence after the one you highlighted is, "If the  
2 modems operate with the mandatory S-values, these  
3 SFR-references always coincide with codeword boundaries."

4 Did I read that correctly, sir?

5 A. Yes, that's what I stated in my direct that under  
6 mandatory S-values, the SFR references coincide with codeword  
7 boundaries.

8 Q. And a good amount of your direct testimony was quoting  
9 back what our expert said, Doctor Cimini and Doctor McNair.  
10 Is that right?

11 A. Yes. I was rebutting their testimony.

12 Q. Okay. Now, you understand that when someone says the  
13 word 'yes' -- well, let me withdraw that.

14 You understand the difference between the word 'yes' and  
15 'no'. Right.

16 A. Yes.

17 Q. Okay. When you say 'yes', you're generally agreeing with  
18 somebody. Is that right?

19 A. Again, I mean, these are high-level questions, so I would  
20 say yes.

21 Q. Okay. When you say 'no', you're generally voicing your  
22 disagreement with somebody. Is that right?

23 A. Again, it depends on the question and the context, but at  
24 a high level, 'no' means no.

25 Q. Okay. And this is some of the testimony that you put up



1 from Mr. McNair. Do I have that right, sir?

2 A. Yes.

3 Q. And this is yesterday, Mr. McAndrews was asking him  
4 questions, and he went back to his deposition and read a  
5 couple of questions from his deposition. And you've cited  
6 that on your slide here. Is that right, sir?

7 A. Yes, that's his sworn testimony.

8 Q. Yes, sir. And I want to look at this right here, that  
9 part right there. And what Mr. McAndrews did is he read a  
10 question back that he had asked him at the deposition. Is  
11 that what happened there, sir?

12 A. Yes.

13 Q. Okay. Now, did Mr. McNair answer 'yes' or 'no' to  
14 Mr. McAndrews' question?

15 A. He said that -- he confirmed that he said 'no'.

16 Q. Right. So the answer that Mr. McNair gave was 'no'. Is  
17 that right? Sir, did he say 'no'? Is that correct?

18 A. I'm not sure what you're asking, counsel. He said -- he  
19 confirmed that the swap doesn't occur --

20 Q. Sir --

21 MR. STEVENS: Your Honor, I object to that as  
22 non-responsive.

23 THE COURT: Restate the question.

24 Q. (BY MR. STEVENS) Right here in response to this question  
25 that Mr. McAndrews asked him in his deposition, was his answer

1 'no'?

2 A. It says, "'No' was your answer."

3 Q. Okay. And 'no', as we talked about a minute ago, that's  
4 generally disagreeing with the person that's asking you the  
5 question how what the word 'no' means. Is that right?

6 A. It depends on the context, I said.

7 Q. Do you think Mr. McNair was agreeing with Mr. McAndrews  
8 when he used the word 'no'?

9 A. Yes, he was confirming that the swap doesn't occur on the  
10 FEC codeword boundary. That's my understanding.

11 Q. Maybe we need to have --

12 THE COURT: One at a time, gentlemen.

13 MR. STEVENS: -- a grammar lesson here.

14 THE COURT: Let's make sure he's finished, Mr.  
15 Stevens, before you launch out with another question. Okay?

16 MR. STEVENS: I apologize, Your Honor. Will do.

17 THE COURT: All right. Let's proceed.

18 Q. (BY MR. STEVENS) The question was, "The swap  
19 doesn't"--that means does not--"The swap does not occur on an  
20 FEC codeword boundary." And then he says "Correct?" Is that  
21 correct.

22 And Mr. McNair said, "No"--that's not correct. That's  
23 what he said. Right?

24 A. That's not my understanding. My understanding is that he  
25 said that it doesn't occur on an FEC codeword boundary.

1 Q. Okay. So you want the jury to believe that he agreed and  
2 said yes. That's what you want the jury to read from that.

3 A. My understanding is that the swap -- he has agreed that  
4 the swap doesn't occur on an FEC codeword boundary.

5 Q. And you remember he was here yesterday. Right?

6 A. Yes.

7 Q. He sat where you're sitting and gave testimony under oath  
8 yesterday. Right?

9 A. Yes.

10 Q. And TQ Delta's counsel had the opportunity to ask him  
11 questions. Right?

12 A. Yes.

13 Q. In fact, they did. And what Mr. McNair actually said in  
14 this courtroom was, "It occurs on an FEC codeword boundary  
15 because the FEC codeword boundary coincides with the  
16 superframe boundary." That's what he actually said in court.  
17 Is that correct, sir?

18 A. The highlighted portion says what you said.

19 Q. Thank you.

20 I'd like to discuss the '008 Patent now. Is that fair,  
21 sir?

22 A. Yes.

23 Q. And there's a total of 26 claims in the '008 Patent, as  
24 you confirmed with your counsel. Is that right?

25 A. Yes.

1 Q. And in this case CommScope is asking the jury to find one  
2 of those claims invalid. Is that right?

3 A. Yes.

4 Q. Okay. One of the things that you said on direct, one of  
5 the reasons you disagreed with Doctor Cimini was as to whether  
6 Jones is reducing PAR at a transmitter versus a receiver.  
7 That was one of your disagreements. Is that correct?

8 A. Yes. There's no evidence in Jones that it reduces PAR at  
9 the transmitter, as required in the Court's construction.

10 Q. Okay. I'd like to look at DDX 1.55, which was introduced  
11 with Doctor Cimini.

12 Sir, I want to read a couple of sentences from the Jones  
13 reference and I want you to tell me if I have it right. Is  
14 that fair?

15 A. Yes.

16 Q. Jones says, "The phases of the frequency domain symbols  
17 within the RA burst are scrambled prior to transmission."

18 Did I read that correct, sir?

19 A. Yes.

20 Q. And then it continues to say, "The phases are scrambled  
21 according to a scrambling pattern or scrambling code that  
22 assigns a scrambling phase value to each tone position within  
23 the burst."

24 Did I read that correctly, sir?

25 A. Yes.

1 Q. Now, I heard you with your counsel discuss the concept of  
2 a pseudorandom number generator during your direct testimony.  
3 Is that right?

4 A. Yes.

5 Q. And, again, you quoted some things that Doctor Cimini had  
6 said. Is that right?

7 A. Yes.

8 Q. Let's look together at what he actually said. And he was  
9 asked the question "In fact, it's your opinion that Jones  
10 could be using the series sequence 0123, 0123. Right?"

11 And his answer was, "I don't believe that's my testimony.  
12 I said it could be using anything."

13 That's the first question and answer on this page. Is  
14 that correct, sir?

15 A. Yes. As I said, he's speculating.

16 Q. And then he continues to say, "Any random pattern or a  
17 series of pattern. But the series doesn't -- didn't make any  
18 sense to me. That was my testimony...earlier."

19 That's what he said. Correct?

20 A. Yes.

21 Q. Okay. Now, sir, when you and I talked a couple of days  
22 ago--right?--you were sitting in that seat, I was right here  
23 two days ago. That is right?

24 A. Yes.

25 Q. And during that discussion two days ago you confirmed to

1 me that pseudorandom generator numbers were known in the  
2 industry before Aware or Mr. Tzannes ever went to the Patent  
3 Office. Is that correct?

4 A. Yes, but not in the manner claimed.

5 Q. My question is pseudorandom number generators were, in  
6 fact, known in the industry before Aware went to the Patent  
7 Office. Is that correct, sir?

8 A. Yes, but not in the manner claimed.

9 MR. STEVENS: Objection; non-responsive.

10 THE COURT: After the word "Yes," I'll strike the  
11 remainder of the answer as non-responsive. The portion where  
12 he says "Yes" is responsive and it will survive the objection.

13 Let's proceed.

14 Q. (BY MR. STEVENS) And, sir, even in the Jones reference,  
15 the Jones reference itself does describe a pseudorandom number  
16 generator. Is that correct?

17 A. For a different purpose, yes.

18 MR. STEVENS: Again, Your Honor, I move to strike as  
19 non-responsive.

20 THE COURT: The portion of his answer where he says  
21 "Yes" is responsive. The portion "for a different purpose"  
22 goes beyond what the question's called for, and I'll sustain  
23 the objection as to that portion of the answer.

24 MR. STEVENS: Thank you, Your Honor.

25 THE COURT: It can be addressed on redirect, but

1 it's not appropriate here.

2 Let's proceed.

3 MR. STEVENS: Doctor Madisetti, you understand that  
4 CommScope in this case alleges that four of the asserted  
5 patents are invalid. You understand that, sir.

6 A. I don't know the exact number, counsel.

7 Q. I'll represent to you that we allege that four are  
8 invalid. Okay? And your testimony addressed just two  
9 patents. Is that correct?

10 A. Yes.

11 Q. Thank you, sir.

12 MR. STEVENS: Your Honor, I pass the witness.

13 THE COURT: All right. Is there redirect from the  
14 Plaintiff?

15 MR. CHIPLUNKAR: Yes, Your Honor.

16 THE COURT: Counsel, approach the bench, please.

17 (The following was had outside the hearing of the  
18 jury.)

19 THE COURT: Just so you'll know, counsel, I'm  
20 showing 16 minutes of trial time remaining for the Plaintiff.  
21 All right?

22 MR. CHIPLUNKAR: That should be more than enough  
23 time.

24 THE COURT: All right. Thank you.

25 (The following was had in the presence and hearing

1 of the jury.)

2 THE COURT: Let's proceed with redirect from the  
3 Plaintiff.

4 REDIRECT EXAMINATION

5 BY MR. CHIPLUNKAR:

6 Q. Professor Madisetti, if you could turn to Exhibit 4 in  
7 your notebook. That would be --

8 A. Yes, I'm there.

9 Q. Tab 4. Sorry.

10 MR. CHIPLUNKAR: And Mr. Diaz, could you please go  
11 to Exhibit 50 and figure 4.

12 Q. (BY MR. CHIPLUNKAR) Professor Madisetti, counsel asked  
13 you a question regarding the random number generator in Jones.  
14 Do you remember that question?

15 A. Yes.

16 Q. And was he referencing, in your opinion, 406 in this  
17 figure?

18 A. Yes.

19 Q. Okay. And on the right-hand side, 410 is something  
20 called the scrambler. Correct?

21 A. Yes.

22 Q. And that is the scrambler that Doctor Cimini relied on?

23 A. Yes.

24 Q. Now, is the random number generator connected to the  
25 scrambler?



1 A. It's not.

2 Q. So a person of ordinary skill in the art looking at the  
3 this picture, what conclusion would he or she draw?

4 A. That the patentee knew what the random number generator  
5 was and knew when to show when it's connected to something,  
6 like, for example, this one, but they knew that they should  
7 not show a random number generator; therefore, nothing that is  
8 random number generator is connected to the scrambler, which  
9 is 410.

10 Q. So Jones -- the inventor Jones expressly decided not to  
11 connect his random number generator to the scrambler.

12 Correct?

13 A. Yes.

14 Q. So is there any chance that a person of ordinary skill in  
15 the art looking at Jones would say that the scrambler is  
16 driven by a random number generator?

17 A. No, they would not.

18 Q. And Jones knew what a random number generator means.

19 Correct?

20 A. Yes.

21 Q. And he intentionally chose not to connect it to his  
22 scrambler.

23 A. That's right.

24 Q. So, in your opinion, is there any doubt that the  
25 scrambler is not being driven by a pseudorandom number

1 generator?

2 A. There's no doubt. It's not.

3 MR. CHIPLUNKAR: I pass the witness.

4 THE COURT: Additional cross examination?

5 MR. STEVENS: No, Your Honor.

6 THE COURT: All right. You may step down, Doctor  
7 Madisetti.

8 THE WITNESS: Thank you, Your Honor.

9 THE COURT: You're welcome.

10 Plaintiff, call your next rebuttal witness.

11 MR. DAVIS: Your Honor, may Doctor Madisetti be  
12 excused, please?

13 THE COURT: He may be excused.

14 Doctor Madisetti, you're free to leave. You're free to  
15 stay.

16 THE WITNESS: Thank you.

17 THE COURT: Now, for the record, call your next  
18 rebuttal witness.

19 MR. DAVIS: Your Honor, at this time Plaintiff  
20 closes its case.

21 THE COURT: All right. Plaintiff closes its  
22 rebuttal case, and subject to final instructions from the  
23 Court and final arguments to the jury rests and closes.  
24 Correct?

25 MR. DAVIS: Rests and closes; yes, Your Honor.

1 THE COURT: All right. Mr. Barton, Defendant has  
2 rested its case in chief, and subject to final instructions to  
3 the jury and closing argument rests and closes?

4 MR. BARTON: That is correct, Your Honor.

5 THE COURT: All right. Thank you.

6 Ladies and gentlemen, that means you've heard all the  
7 evidence in this case, and it's a couple of minutes before  
8 2:00 in the afternoon. There are quite a few things I have to  
9 take up with counsel outside of your presence before I'll be  
10 prepared to give you my final instructions and then proceed to  
11 hear closing arguments from the Plaintiff and then the  
12 Defendants.

13 That means, as a practical matter, you're going to get  
14 the rest of the afternoon off, but I need you back here  
15 tomorrow morning. I do not think I'll be ready to go forward  
16 with you by 8:30. I am hopeful I'll be ready to go forward  
17 with you by 9:00. So not only do you get the afternoon off,  
18 you get to be here 30 minutes late in the morning. But I do  
19 need you here ready to go at 9:00.

20 Now, I want you to understand this is as much art as it  
21 is science. I could be ready to go before 9:00 and waiting on  
22 you, it could be after 9:00 and you may be waiting on me, but  
23 9:00 is my best estimate. And it is an estimate.

24 I'm going to ask you to put your notebooks on the table  
25 in the jury room as you leave. We are getting close to the

1 conclusion of this trial. It would be an absolute travesty if  
2 all the work, effort, and resources committed to this trial  
3 were jeopardized because somebody failed to continue to  
4 observe the Court's important instructions. So let me say  
5 again, do not discuss or communicate with anyone about this  
6 case in any way, and that includes the eight of you, until  
7 tomorrow, after I've given you my final instructions and after  
8 counsel for the parties have presented their closing  
9 arguments, at which time I will instruct you to retire to the  
10 jury room and to deliberate on your verdict. At that point,  
11 but not until, things switch and it becomes your duty to  
12 discuss the case among the eight of yourselves in the jury  
13 room as you deliberate on how to answer the questions in the  
14 verdict form that I will send back with you. And again, as I  
15 will remind you tomorrow, your answers to those questions must  
16 be unanimous.

17 So please, ladies and gentlemen, continue to be vigilant  
18 about your conduct in following the instructions that I've  
19 given you.

20 With that, you are excused until 9:00 tomorrow morning.

21 (Whereupon, the jury left the courtroom.)

22 THE COURT: Please be seated.

23 Just for informational purposes, the Plaintiffs concluded  
24 the evidence in this case with 13 minutes of trial time  
25 remaining and unused. The Defendants concluded the

1 presentation of evidence in this case with an hour and 35  
2 minutes of trial time remaining and unused.

3 My intention, counsel, is to take a recess, after which I  
4 intend to return to the bench and take up motions from either  
5 or both parties offered pursuant to Rule 50(a) of the Federal  
6 Rules of Civil Procedure.

7 I want to make it clear, although I'm confident that  
8 there are lawyers on both sides of this case that have clear  
9 experience practicing before me in the past who will know  
10 this, but if you are involved in presenting final arguments,  
11 you're not required to be here for the remainder of the  
12 practice before the Court, including motions under Rule 50(a),  
13 and then preparation regarding the charge and the verdict  
14 form. You're welcome to stay.

15 There is no shortage of lawyers on either side of this  
16 case--I'll put it that way--so as long as I have one or more  
17 lawyers for each side who are prepared to address these  
18 matters, the rest of you are not required. You are all  
19 welcome, but you're not required.

20 When we get to the Rule 50(a) motions, I don't know who's  
21 going to present the motions for either side or both sides,  
22 but it is not uncommon for some of the more -- some of the  
23 trial team that is younger and has less trial time experience  
24 to present those motions, and that is a welcome occurrence, in  
25 my view. I share the view of many of my colleagues on the

1 bench that in our profession it is harder and harder for young  
2 lawyers to get experience arguing in court, and it is a  
3 problem for our profession, so I welcome any of the lawyers on  
4 either side that are in need of and desirous of having more  
5 courtroom argument time to present these motions.

6       However, it sometimes is the case that in their  
7 exuberance younger lawyers forget the fact I have been up here  
8 throughout this entire trial, so please don't send somebody to  
9 the podium who starts out by telling me, Your Honor, this is a  
10 patent infringement case. That won't do me any good and it  
11 will take a lot of time that we could use for other purposes.  
12 I want to hear arguments, I want to focus on them and get down  
13 to the meat of the matter as soon as possible. I've heard all  
14 the evidence. I've considered all the testimony. So take  
15 that into account when you present your motions under Rule  
16 50(a), and try to focus them accordingly.

17       After I've heard and ruled on motions under Rule 50(a) of  
18 the Federal Rules of Civil Procedure, then I will conduct an  
19 informal charge conference, probably in my chambers, in which  
20 I invite counsel from either side or both sides to participate  
21 in reviewing with me the most current submission of a proposed  
22 final jury instruction and verdict form. This will give me an  
23 opportunity to probe each side where you are not in agreement.  
24 You may find that I have questions where you don't have a  
25 disagreement but I want to know something about why the

1 language presented is presented in that way. So we will have  
2 an informal, unstructured, unrecorded but free-flowing fulsome  
3 discussion about anything related to the current state of  
4 those documents.

5 And then when I have had the full benefit of that input  
6 informally, I will consider it, take it into account, and then  
7 generate, as soon as practical, what I believe to be the final  
8 and appropriate charge to the jury and verdict form. It may  
9 well be that that will be sometime this evening before I get  
10 that done. I will probably not keep you up here while that  
11 process is going on. I will in all likelihood email you PDFs  
12 of those documents sometime this evening, even perhaps early  
13 tomorrow morning.

14 But then you should understand that at least at present,  
15 unless I tell you otherwise, my plan is to convene at 8:00  
16 a.m. in the morning and conduct a formal charge conference  
17 where either side may lodge on the record any objections with  
18 regard to the final jury instructions and verdict form that  
19 they feel are appropriate and necessary to protect the  
20 interests of their clients. That is why I told the jury to be  
21 here at 9:00 and not 8:30.

22 I believe we can complete the formal charge conference  
23 before 9:00, and then the only thing that should be remaining  
24 is for me to make final copies of those documents, given that  
25 it is my long-standing practice to send one printed copy of

1 the final jury instructions back with the jury for each member  
2 of the jury. So there are going to be eight final printed  
3 copies of the final jury instructions and one clean copy of  
4 the verdict form sent back with the jury when they retire to  
5 deliberate. I'll instruct the Court Security Officer to  
6 deliver those to the jury when they retire.

7 So after we finish the formal charge conference, I should  
8 only need a few minutes to run those final copies, get them  
9 collated and stapled and have them ready to send back to the  
10 jury. Then hopefully at or near 9:00 tomorrow we will begin  
11 with my instructions, my final instructions to the jury  
12 followed by closing arguments from counsel.

13 Can you tell me at this point who's going to be  
14 presenting closing arguments for the respective parties?

15 Mr. Davis, what's Plaintiff's intent?

16 MR. DAVIS: I will, Your Honor.

17 THE COURT: All right. Both the first and the final  
18 closing?

19 MR. DAVIS: That's the plan; yes, Your Honor.

20 THE COURT: All right. What's going to be the plan  
21 with regard to Defendants?

22 MR. DACUS: I don't know that we know definitively.  
23 I will certainly be involved, Your Honor, but Mr. Stevens may  
24 assist.

25 THE COURT: Okay. Well, it's no problem with having



1 more than one counsel on the Defense side use your allocated  
2 time for argument. I leave it to the two of you as to how to  
3 divide it.

4 MR. DACUS: Thank you, Your Honor.

5 THE COURT: If you do it that way.

6 MR. DACUS: Yes, sir.

7 THE COURT: More than once I've had people tell me,  
8 I'm going to go 15 minutes and the second one's going to go 25  
9 minutes, and then when the second one gets up there there's  
10 five minutes left, so I'll leave it to you-all to work that  
11 out, if you choose to do it that way.

12 MR. DACUS: I'm a pretty good tackler, Your Honor.  
13 I know how to tackle somebody.

14 THE COURT: I thought it was baseball, not football.

15 All right. Are there questions about where we go from  
16 here from either side?

17 MR. DAVIS: No questions, Your Honor.

18 MR. DACUS: No, Your Honor.

19 THE COURT: All right. It's just after 2:00. I'm  
20 going to take 40 minutes, plus or minus, and then I'll be back  
21 at that time to conduct a hearing on the record regarding  
22 motions from either party pursuant to Rule 50(a).

23 Court stands in recess.

24 (Brief recess.)

25 End of part 10

1 THE COURT: Be seated, please.

2 All right, counsel. The Court will proceed at this time  
3 to take up motions from either or both parties offered  
4 pursuant to Rule 50(a) of the Federal Rules of Civil  
5 Procedure.

6 What I would like to do is as follows: I'd like a  
7 spokesperson for Plaintiff to go to the podium and identify  
8 topically for me the matters they wish to move for relief on  
9 under Rule 50(a); not to present argument at this time but to  
10 identify the matters themselves they seek relief for as a  
11 matter of law under Rule 50(a), and then I'll get a similar  
12 rendition of the same type information from the Defendants.

13 I often find that it is not unusual to have diametrically  
14 opposed motions that sometimes are more efficiently argued at  
15 the same time. If Plaintiff moves for judgment as a matter of  
16 law that there is infringement and Defendant moves as a matter  
17 of law there is no infringement, then I'll hear combined  
18 infringement or non-infringement arguments at the same time.  
19 But to know how best to structure the arguments going forward,  
20 I need to know what the respective topics or bases are that  
21 the parties seek to move for relief under.

22 So with that, I'd like a spokesperson for Plaintiff to go  
23 to the podium and tell me what matters they seek relief for  
24 under Rule 50(a).

25 MR. FINK: Your Honor, Rudy Fink for the Plaintiff

1 TQ Delta. Your Honor, if I may we have a minor housekeeping  
2 matter I would like to raise with the Court.

3 THE COURT: What is that, Mr. Fink?

4 MR. FINK: Doctor Art Brody and Doctor Todor Cooklev  
5 to our understanding have not yet been excused, and we just  
6 wanted to resolve that so that they could be excused.

7 THE COURT: All right. Those two gentlemen are  
8 excused and released. And if they'd like to stay, they're  
9 welcome to. If they'd like to leave, they're welcome to do  
10 that.

11 MR. FINK: Thank you.

12 THE COURT: All right. Now let's proceed to take up  
13 what Plaintiff seeks for -- seeks relief for under Rule 50(a).

14 MR. FINK: Yes, Your Honor. The issue of  
15 infringement and then this infringement also under induced  
16 infringement, validity --

17 THE COURT: Just a minute.

18 MR. FINK: Sure.

19 THE COURT: All right. Direct and induced  
20 infringement. Validity. What's next?

21 MR. FINK: Breach of contract.

22 THE COURT: And you're talking about the FRAND/RAND  
23 obligation. Correct?

24 MR. FINK: Yes, Your Honor.

25 THE COURT: And you're seeking judgment as a matter

1 of law that there's been no breach of the FRAND or RAND  
2 obligation.

3 MR. FINK: Yes, Your Honor.

4 THE COURT: Okay. What besides these matters?

5 MR. FINK: Willfulness and damages.

6 THE COURT: Okay.

7 MR. FINK: And I'll let the Defendants speak, but I  
8 believe they are, as Your Honor said, diametrically opposed on  
9 all of the same issues.

10 THE COURT: On the matter of damages, Mr. Fink, what  
11 specifically does Plaintiff seek relief for under Rule 50(a)?  
12 Be specific. What kind of damages, et cetera.

13 MR. FINK: A finding of damages in Plaintiff's favor  
14 on the lump sum and reasonable royalty.

15 THE COURT: All right. Well, that's something I  
16 expected us to talk about when we get to the charge  
17 conference. The Court is not aware that you can have both a  
18 running royalty and a lump sum royalty.

19 MR. FINK: Okay.

20 THE COURT: The law, as I understand it, is that if  
21 the jury awards damages in the form of a running royalty, then  
22 those are damages for past infringement, and future  
23 infringement will be assessed on the same basis or rate as  
24 established for the past damages and will run in the future,  
25 if and as to the extent that there is either continuing

1        infringing units sold or other infringing acts in the future.

2                However, lump sum damages, if awarded, are a one-time  
3        payment for both past and future infringement that effectively  
4        gives the Defendant a lifetime license on the patents-in-suit.  
5        I don't think you can do both.

6                So that's one of the questions I had to take up with you  
7        when we consider what you've submitted on the proposed charge,  
8        but I would like to know specifically what you're going to  
9        argue for under Rule 50(a) under the topic of damages.

10               MR. FINK: So in that case it would be reasonable  
11        royalty, Your Honor.

12               THE COURT: Reasonable royalty in the form of either  
13        a lump sum or a running royalty.

14               MR. FINK: Running royalty, Your Honor. Thank you.

15               THE COURT: All right. In the amount of \$89  
16        million, I gather?

17               MR. FINK: Through the June 30th, 2022 date that was  
18        the last date we were provided units and continuing.

19               THE COURT: All right. Anything else you haven't  
20        mentioned to me?

21               MR. FINK: No, Your Honor.

22               THE COURT: Let me hear from someone on behalf of  
23        Defendants as to what relief they seek under Rule 50(a).

24               MR. BRADLEY: Good afternoon, Your Honor. Kirk  
25        Bradley for Defendants.

1 THE COURT: Yes, Mr. Bradley.

2 MR. BRADLEY: As Mr. Fink mentioned, we do have what  
3 I believe to be diametrically opposed motions, and our list is  
4 I believe similar, if not the same. I'm going to put a finer  
5 point on just a couple of those.

6 The first one is we intend to move under Rule 50(a) for  
7 no direct literal infringement. And I specify literal because  
8 there's been no allegation in this case of infringement under  
9 the doctrine of equivalents. And because of that, we don't  
10 intend to move as to doctrine of equivalents because it's not  
11 in the case. But no direct literal infringement is the first  
12 one.

13 The second one is no induced infringement, and I will  
14 similarly comment that there has been no allegation of  
15 contributory infringement. So under the category of indirect,  
16 we're only talking induced and we intend to move on that.

17 The next one in our list is no willfulness.

18 THE COURT: Just so we keep these similarly in  
19 parallel form, Mr. Bradley, tell me what you're seeking as far  
20 as relief related to the topic of invalidity --

21 MR. BRADLEY: As to the topic of invalidity --

22 THE COURT: -- if anything.

23 MR. BRADLEY: Yes, Your Honor. We do intend to move  
24 on the -- on the topic of invalidity. We believe there's  
25 invalidity of the asserted claims of four of the seven

1 patents. Those four patents are the '686, '008, '048, and  
2 '835, and we intend to move as to invalidity of the asserted  
3 claim or claims, if there's more than one, of those four  
4 patents.

5 THE COURT: Can you identify just for particularity  
6 the specific claims that relate to each of these four?

7 MR. BRADLEY: I can, Your Honor. For the '686  
8 Patent, it is claim 36. For the '008 Patent, it is claim 14.  
9 For the '048 Patent, it is claim 5. And for the '835 Patent,  
10 it is dependent claim 10 which depends from 8.

11 THE COURT: All right. And with regard to these  
12 claims of these four specified patents, you're seeking  
13 judgment as a matter of law that they're invalid either under  
14 anticipation or obviousness? Is that correct?

15 MR. BRADLEY: For two of the patents, it is  
16 anticipation. And for all four of them, it is obviousness,  
17 either single reference obviousness or a combination.

18 THE COURT: Which two are being urged under §102?

19 MR. BRADLEY: Claim 10 of the '835 Patent and claim  
20 14 of the '008 Patent are the two that we say judgment as a  
21 matter of law that they are anticipated by the prior art.

22 THE COURT: All right.

23 MR. BRADLEY: And then for all four of those patents  
24 in the specific claims I mentioned, we additionally intend to  
25 move for judgment as a matter of law under Rule 50(a) that

1 those claims are obvious in view of the prior art.

2 THE COURT: All right. Anything else under the  
3 general topic of invalidity?

4 MR. BRADLEY: No, Your Honor.

5 THE COURT: Then tell me what your position is on  
6 willfulness.

7 MR. BRADLEY: On willfulness, our -- our position is  
8 that and we will move under Rule 50(a) that there is no  
9 willfulness. And for housekeeping, this will somewhat overlap  
10 with the intent requirement of inducement that we will be  
11 talking about with inducement.

12 We believe there's no evidence presented at trial as to  
13 CommScope's state of mind apart from the evidence that  
14 CommScope did not intend and did not have any willful  
15 activity. And we can describe that more when we get into it.

16 THE COURT: All right. Beyond willfulness, what  
17 else do you seek relief for under Rule 50(a)?

18 MR. BRADLEY: We also intend to seek JMOL under Rule  
19 50(a) on the issue of damages. And that, as Your Honor might  
20 imagine, has multiple subparts. It includes the methodology  
21 that Doctor Putnam and TQ Delta have applied. It includes the  
22 pre-2015 sales, which is at least partially the basis for  
23 their inducement theory and it grabs all those additional  
24 products, in our view, in contravention of Section 286 of the  
25 Patent Act.



1 And, additionally, the damages they've requested for  
2 holdout in the amount of approximately \$7.3 million, there is  
3 challenges to each of those aspects and, looking through my  
4 notes, a few subparts to those, but that's the general  
5 construct.

6 THE COURT: All right. With regard to the pre-2015  
7 sales of allegedly infringing products, we had a vigorous  
8 debate about this at pretrial, and I think the Court was  
9 pretty clear at the pretrial stage that acts of infringement  
10 before 2015 would not be recoverable, but products purchased  
11 before 2015, the threshold date in 2015, I should say,  
12 products purchased before that threshold date that continued  
13 to be used commercially which were continually supported by  
14 and used in a way that infringed after the threshold date in  
15 2015, could serve as a basis for damages.

16 And I think I made that pretty clear through the *Daubert*  
17 motions and the summary judgment motions and all the pretrial  
18 motions.

19 You want to revisit that on 50(a) and ask the Court to  
20 exclude not just acts of infringement that themselves predate  
21 the threshold date in 2015, but acts of infringement after the  
22 threshold date that relate to products which were purchased  
23 before the threshold date regardless of how they were used  
24 after the threshold date.

25 Is that what you're asking for?

1 MR. BRADLEY: We understand, Your Honor, that Your  
2 Honor ruled pretrial that any acts of infringement occurring  
3 before the threshold date in 2015 were not part of this trial  
4 and have already been excluded.

5 Our motion is for -- and it ties into the inducement  
6 argument because TQ Delta has pressed a theory that products  
7 sold before the threshold date in 2015 have been used by  
8 CommScope customers such as AT&T during the damages period,  
9 meaning after that threshold date in 2015.

10 THE COURT: And that's what you're seeking relief on  
11 at this stage. Correct?

12 MR. BRADLEY: Yes, Your Honor. And both as that  
13 theory of inducement and as the associated damages.

14 THE COURT: All right. I just want to make sure I'm  
15 clear on what you're asking for. Anything further that  
16 Defendants are asking for here, Mr. Bradley?

17 MR. BRADLEY: Yes, Your Honor, there's one  
18 additional one, which is we intend to seek judgment as a  
19 matter of law under Rule 50(a) for breach of contract, meaning  
20 that TQ Delta has breached its RAND obligation under the  
21 contract it has with the ITU to which CommScope is a  
22 third-party beneficiary. We think judgment as a matter of law  
23 on that issue is appropriate.

24 THE COURT: Anything else that you want to raise  
25 under 50(a)?

1 MR. BRADLEY: That's the list, sir.

2 THE COURT: Okay. All right.

3 THE COURT: Okay. All right. Then having  
4 identified substantively the matters that the competing  
5 parties seek relief for under Rule 50(a), the Court will seek  
6 to hear targeted argument on these issues. And, again, I see  
7 no reason to have separate and disjointed argument when there  
8 are diametrically opposed motions that lend themselves to  
9 combine argument between the parties.

10 So with that, let's take up the issue of infringement  
11 and/or non-infringement urged by the competing parties under  
12 Rule 50(a).

13 Let me hear Plaintiff's argument first on their motion,  
14 both as to direct and induced infringement, and then I'll hear  
15 response from Defendant which will effectively argue their  
16 affirmative motion for judgment as a matter of law of no  
17 infringement either induced or direct.

18 So let me hear from Plaintiff on this first.

19 MS. RATYCZ: Your Honor, Ashley Ratycz on behalf of  
20 TQ Delta.

21 THE COURT: Please proceed.

22 MS. RATYCZ: TQ Delta moves pursuant to Federal Rule  
23 of Civil Procedure 50(a) for a finding of direct infringement  
24 by CommScope of claim 36 of the '686 Patent, claim 10 of the  
25 '354 Patent, claim 10 of the '835 Patent, claim 14 of the '008

1 Patent, claim 17 of the '881 Patent, claim 5 of the '048  
2 Patent, and claim 18 of the '411 Patent for the making, using,  
3 selling, offering to sell, and/or importing of CommScope  
4 accused products which includes the 5031, 5168, 5268,  
5 BGW210-700, NVG 589, NVG 599, and the NVG 44X products.

6 TQ Delta has presented ample legally sufficient and  
7 un rebutted evidence of CommScope's infringement. First,  
8 regarding claim 36 of the '686 Patent, TQ Delta's expert  
9 Doctor Brody mapped all the elements of claim 36 to portions  
10 of the VDSL2 standard. He demonstrated that all of the  
11 accused products in fact comply with that standard. He  
12 presented and summarized the source code evidence and testing  
13 performed by Doctor Cooklev showing the actual operation of  
14 the accused products.

15 CommScope did not present any expert testimony to rebut  
16 Doctor Brody on any of his points.

17 Based on this, there is no reasonable juror that could  
18 find that the accused products do not infringe every element  
19 of claim 36 of the '686 Patent.

20 Regarding claim 10 of the '354 Patent, Doctor Brody again  
21 mapped all the elements of claim 10 of the '354 Patent to  
22 portions of the VDSL2 and G.INP standards. He demonstrated  
23 that the products comply with those standards, and he  
24 presented and summarized source code evidence and testing  
25 evidence from Doctor Cooklev showing the actual operation of

1 the products.

2 CommScope, again, did not present any expert testimony to  
3 rebut Doctor Brody. Instead, CommScope argued only that it  
4 does not include the ROC feature in its products. But as the  
5 source code shows and as the testing shows, the ROC feature is  
6 in the products. And actually one of CommScope's own experts,  
7 Doctor Ransom, confirmed that the ROC functionality is  
8 actually defined in CommScope's own source code.

9 Based on this, no reasonable juror could find that the  
10 accused products do not include every element of claim 10 of  
11 the '354 Patent.

12 Regarding claim 14 of the '008 Patent, TQ Delta's expert  
13 Doctor Madisetti, like Doctor Brody, mapped all the elements  
14 of claim 14 of the '008 Patent to portions of the VDSL2  
15 standard. He demonstrated that all the accused products  
16 comply with the standard. He presented his own analysis of  
17 the source code and presented simulation results performed by  
18 Doctor Cooklev showing the reduction in PAR.

19 CommScope did not present expert testimony to rebut  
20 Doctor Madisetti.

21 Based on this, no reasonable juror could find that the  
22 accused products do not include every element of claim 14 of  
23 the '008 Patent.

24 Regarding claim 10 of the '835 Patent, Doctor Madisetti  
25 again mapped the elements of claim 10 to portions of the VDSL2

1 standard. He demonstrated that all the accused products  
2 comply with the standard, presented his own analysis of the  
3 source code, and presented testing evidence by Doctor Cooklev.

4 Once again, CommScope did not present any expert  
5 testimony to rebut Doctor Madisetti's infringement opinions.

6 Based on this, no reasonable juror could find that the  
7 accused products do not include every element of claim 10 of  
8 the '835 Patent.

9 Regarding claim 17 of the '881 Patent, TQ Delta's expert  
10 Doctor Cooklev mapped all of the elements of claim 17 to  
11 portions of the VDSL2 and G.bond standards. He demonstrated  
12 that the accused products comply with those standards,  
13 presented his own analysis of the source code, and CommScope's  
14 non-infringement expert, Doctor Ransom, did not actually rebut  
15 Doctor Cooklev's opinions. In fact, Doctor Ransom looked only  
16 at the standards and opined that the accused products do not  
17 infringe because the functionality is implementation specific.

18 But Doctor Ransom admitted that he did not review a  
19 single CommScope document about the products, he did not  
20 perform product testing, and he did not look at the source  
21 code, though he noted during his cross that those things would  
22 have been very helpful in determining how the products work.  
23 As such, Doctor Ransom has absolutely no basis for the  
24 assertion that the accused products do not support or  
25 implement the functionality recited in claim 17 as it is

1 recited in the claim.

2 And based on this, no reasonable juror could find that  
3 the accused products do not include every element of claim 17  
4 of the '881 Patent.

5 Regarding claim 5 of the '048 Patent, again Doctor  
6 Cooklev mapped the claim elements to the VDSL2 standard,  
7 demonstrated that the accused products comply with that  
8 standard, presented the results of his testing and his source  
9 code analysis.

10 Once again, Doctor Ransom in his attempt to rebut Doctor  
11 Cooklev's opinions, relied only on the standard. He opined  
12 that the accused products cannot infringe because they are  
13 implementation specific as the standard describes. But,  
14 again, because Doctor Ransom has absolutely no basis for his  
15 position on how the accused products work because he did not  
16 review any documents, did not perform any testing, and did not  
17 look at the source code, his assertion is baseless.

18 Based on this, no reasonable juror could find that the  
19 accused products do not include every element of claim 5 of  
20 the '048 Patent.

21 Regarding claim 18 of the '411 Patent, Doctor Cooklev  
22 again mapped all the claim elements to the VDSL2 and G.INP  
23 standards. He again demonstrated that all the accused  
24 products comply with those standards, he presented the results  
25 of his testing, and he presented the results of his source

1 code analysis.

2 Doctor Ransom in his attempt to rebut Doctor Cooklev's  
3 opinions looked only at the standards. He did not provide any  
4 rebuttal or any evidence about how the accused products  
5 actually work and, therefore, has no basis for his assertion  
6 that the accused products do not implement and support the  
7 functionality described in the claims.

8 Because Doctor Ransom did not review any of the relevant  
9 information, no reasonable juror could find that the accused  
10 products do not include every element of claim 18 of the '411  
11 Patent.

12 And I want to put one caveat on my previous explanation.  
13 The 5031 product, we are not asking for a 50(a) motion with  
14 respect to the '881 Patent. That is the bonding patent. We  
15 concede that that product does not have the bonding  
16 functionality.

17 For all of these reasons that I've explained, TQ Delta  
18 requests judgment as a matter of law of direct infringement  
19 for claim 36 of the '686 Patent, claim 10 of the '354 Patent,  
20 claim 10 of the '835 Patent, claim 14 of the '008 Patent,  
21 claim 17 of the '881 Patent, claim 5 of the '048 Patent, and  
22 claim 18 of the '411 Patent for each of the CommScope accused  
23 products sold after August 2015.

24 THE COURT: All right. Thank you, counsel.

25 MS. RATYCZ: Would you like me to also present the



1 induced infringement.

2 THE COURT: Yes, I'd like to hear your complete  
3 argument. To the extent you can present it without reurging  
4 the exact same factual basis, that would be helpful. But go  
5 ahead.

6 MS. RATYCZ: Absolutely.

7 TQ Delta also moves pursuant to Rule 50(a) for a finding  
8 of indirect infringement and specifically inducement by  
9 CommScope of the asserted claims for inducing the infringing  
10 use of the patent claims by its customers.

11 No reasonable jury could find by a preponderance of the  
12 evidence that the accused products do not include every  
13 element of the asserted claims for all of the reasons that I  
14 just described. Additionally, TQ Delta presented ample  
15 un rebutted evidence of induced infringement for the products  
16 that were sold between August 2010 and August 2015.

17 First, TQ Delta presented substantial evidence that the  
18 accused products in the amounts that were identified by  
19 CommScope documents and by CommScope and discussed by Doctor  
20 Putnam are still being used by CommScope's customers such as  
21 AT&T. This evidence comes from TQ Delta's expert Doctor  
22 Cooklev as well as CommScope witnesses such as Paul Baker,  
23 Steve Chochran, Jaime Salazar, and Courtney Rosenthal.

24 Second, TQ Delta presented un rebutted evidence that  
25 CommScope induced this use by its customers by, for example,

1 providing product maintenance, providing firmware updates,  
2 having regular discussions with AT&T regarding its products,  
3 among many other things. Again, this was supported by the  
4 testimony of both Doctor Cooklev as well as numerous CommScope  
5 witnesses.

6 And, third, TQ Delta presented unrebutted evidence that  
7 CommScope knew or should have known that its customers use  
8 constituted infringement. TQ Delta presented evidence that it  
9 notified CommScope of its patents in 2013 and that  
10 subsequently it shared technical information with CommScope  
11 about its patents, how they worked, and how they read on the  
12 various standards.

13 They even provided technical information to CommScope  
14 about how they believed CommScope's products worked and how  
15 they believed CommScope's products practiced those standards.  
16 In fact, based on CommScope's trial defenses, it is very  
17 evident that CommScope never had a basis for stating it did  
18 not infringe these claims.

19 CommScope started this with several experts on  
20 non-infringement and ended up presenting a non-infringement  
21 defense at trial for only three of the seven patents. And  
22 that non-infringement expert, Doctor Ransom, as I stated, was  
23 never given any CommScope documents, was not allowed or asked  
24 to review the source code, and did not perform any product  
25 testing.

1 But, again, as Doctor Ransom explained, that would have  
2 been helpful to understand in order to know how these products  
3 works. CommScope clearly didn't want their expert to know how  
4 the products worked because CommScope knew that every piece of  
5 evidence in this case would show that they infringe.

6 No reasonable juror could find that the knowledge  
7 requirement was not met by CommScope.

8 In view of the foregoing, TQ Delta requests judgment as a  
9 matter of law for indirect infringement of the asserted claims  
10 for each of the CommScope products sold prior to August 2015  
11 and after August 2010.

12 THE COURT: Anything else related to the general  
13 topic of infringement?

14 MS. RATYCZ: No, Your Honor.

15 THE COURT: Let me hear responsive argument  
16 regarding its affirmative motions under Rule 50(a) from the  
17 Defendants related to infringement, both direct and induced.

18 MR. MARAIS: Thank you, Your Honor. Nic Marais on  
19 behalf of the CommScope Defendants.

20 THE COURT: Please proceed.

21 MR. MARAIS: Thank you. And I'll be talking about  
22 direct infringement, and my colleague Mr. Bradley will take  
23 induced.

24 THE COURT: All right.

25 MR. MARAIS: Thank you.

1           We'd ask this Court to deny TQ Delta's 50(a) motion and  
2           grant Defendants' JMOL of no direct literal infringement. I'd  
3           first like to start, it sounds like TQ Delta might be moving  
4           on both DOE and literal. So to the extent they are moving on  
5           DOE, I'd just like to note for the record that that is not in  
6           this case and TQ Delta did not present any evidence of DOE in  
7           this case.

8           THE COURT: And by DOE, you mean the doctrine of  
9           equivalents.

10          MR. MARAIS: Yes, Your Honor. I apologize.

11          THE COURT: No problem.

12          MR. MARAIS: Doctrine of equivalents.

13          THE COURT: Okay. What else?

14          MR. MARAIS: As to direct literal infringement, and  
15           I'm going to go in a slightly different order than Ms. Ratycz  
16           just went. Starting with claim 36 of the -- or I apologize.  
17           Let me back up a second, Your Honor.

18           CommScope would ask this Court to grant JMOL of no direct  
19           literal infringement of claim 36 of the '686 Patent, claim 17  
20           of the '881 Patent, claim 5 of the '048 Patent, claim 14 of  
21           the '008 Patent, claim 10 of the '835 Patent, claim 18 of the  
22           '411 Patent, and claim 10 of the '354 Patent as to each of the  
23           accused products in this case.

24           Starting with claim 36 of the '686 Patent, no reasonable  
25           juror could conclude that CommScope's products infringe

1 because the evidence that was presented at trial demonstrated  
2 that the claim language actually requires something where a  
3 symbol is mapped to a bit while the standard that TQ Delta's  
4 experts that TQ Delta presented indicates that the requirement  
5 was that a bit must be mapped to a symbol.

6 And based on that evidence alone, there could not -- no  
7 reasonable juror could conclude that CommScope's products  
8 literally infringe the product or infringe claim 36 of the  
9 '686 Patent. In addition to that, TQ Delta failed to meet its  
10 burden to prove infringement on this claim.

11 With respect to claim 17 of the '881 Patent, again here  
12 the claim requires reducing a difference in latency. The  
13 standard that TQ Delta pointed to and cited for its evidence  
14 of infringement in this case requires controlling latency.

15 CommScope's expert, Doctor Ransom, presented testimony  
16 showing that these are material differences and, as this is a  
17 required element of the claim, there can be no or no  
18 reasonable juror could conclude that there is direct literal  
19 infringement on this claim.

20 As to claim 5 of the '048 Patent, the claim requires a  
21 maximum number of bytes of memory available to be allocated to  
22 a deinterleaver. What TQ Delta pointed to was a message that  
23 was the max\_delay\_octet field.

24 CommScope's expert, Doctor Ransom, again presented  
25 evidence that the max\_delay\_octet field is a delay. It is not

1 a message that specifies a maximum number of bytes of memory  
2 that are available to be allocated to a deinterleaver.

3 For that reason, no reasonable juror could conclude that  
4 CommScope's accused products infringe this claim.

5 Similarly, for claim 18 of the '411 Patent, the claim  
6 requires a memory that is allocated in accordance with a  
7 message and that message must happen during initialization and  
8 that message must actually indicate how the memory has been  
9 allocated.

10 Again, CommScope's expert, Doctor Ransom, presented  
11 testimony that no such message is ever sent. Rather, all that  
12 is sent are various messages of parameters that relate to  
13 delay, and because delay does not amount to an amount of  
14 memory, the expert's testimony indicated that that did not  
15 meet that claim limitation.

16 And, again, no reasonable juror could conclude that  
17 CommScope's accused products infringe claim 18 of the '411 for  
18 at least that reason.

19 Regarding claim 10 of the '354 Patent -- sorry. I  
20 realized I skipped a claim, but I'll go back to that one at  
21 the end.

22 Regarding claim 10 of the '354 Patent, TQ Delta failed to  
23 prove that the products are actually operable to do the  
24 functionality of the claim. The testing pointed to by TQ  
25 Delta was shown that the ROC feature that TQ Delta was

1 pointing to was actually unsupported. That was shown in the  
2 testimony and the cross-examination of Doctor Cooklev.

3 Additionally, a fact witness, Mr. Miller, was brought up,  
4 and he testified as to the source code that he himself wrote  
5 and confirmed that this ROC feature is in fact off and has  
6 never been enabled on these devices, at least since 2012.

7 So for those reasons, again, claim 10 of the '354 Patent  
8 can likewise not be or no reasonable juror could find that  
9 claim 10 of the '354 Patent was infringed.

10 Going back to claim 14 of the '008 Patent, the claim  
11 requires that each and every carrier has an actual phase  
12 shift. It must -- it must shift at some point or rotate.  
13 Now, the standard says, and the standard -- again, this is  
14 what TQ Delta pointed to as evidence of infringement, says  
15 that the index -- or when it is set to index 0, there is no  
16 rotation.

17 In addition to that, the fact that whether index 0 was  
18 set, there's no evidence as to the fact that perhaps it was  
19 not set. And, generally speaking, the process is all source  
20 code based, and there is no evidence showing that there is  
21 actual infringement in the source code that shows this sort of  
22 phase shift.

23 For those reasons, there is -- sorry -- no reasonable  
24 juror could conclude that CommScope's accused products  
25 infringe the claim 14 of the '008 Patent.

1 And I skipped another claim. I apologize, Your Honor.

2 As to claim 10 of the '835 Patent, what TQ Delta points  
3 to is the standard alone in trying to prove this feature.  
4 They point to something called the dynamic D feature, but they  
5 failed to point to sufficient evidence showing that that  
6 dynamic D feature is actually ever set in the CommScope  
7 products. It's not something that has to be set and, in fact,  
8 evidence was presented that indicated that it was not set.

9 CommScope -- or TQ Delta cannot rely on pointing to the  
10 standard alone for this feature, and they fail to show where  
11 in the products this feature is actually -- or where in the  
12 source code this feature actually operates.

13 And for that reason, claim 10 of the '835 Patent is  
14 not -- or no reasonable juror could conclude that CommScope's  
15 accused products infringe claim 10 of the '835 Patent.

16 Now, very briefly I will address a few points made by TQ  
17 Delta. First, with respect to Doctor Ransom, certainly Doctor  
18 Ransom did not need to point or rely on all CommScope -- or  
19 rely on CommScope documentation when what TQ Delta was  
20 pointing to was, in fact, the standard, and he rebutted their  
21 interpretation of that standard, and that was sufficient to  
22 prove non-infringement.

23 With respect to actual code, and I think this relates to  
24 the '354 Patent, Doctor Ransom was shown some definitions of  
25 code, but those simply defined variables. That was not



1 executable code that could be run. So there is insufficient  
2 evidence to grant TQ Delta's motion on those as well.

3 Nothing further on direct literal infringement, Your  
4 Honor.

5 THE COURT: Thank you.

6 All right. Let's move to the general topic of validity,  
7 invalidity. Let's begin this time with the Defendants and let  
8 me hear their motion for judgment as a matter of law with  
9 regard to invalidity regarding the four identified patents at  
10 issue in the case.

11 MR. BRADLEY: Your Honor, Kirk Bradley. We would  
12 like, if it suits, Your Honor, at this time to address their  
13 inducement claim and our opposing claim of no inducement.

14 THE COURT: Okay. Okay. I'm sorry. I was told  
15 that you were going to do the inducement separately. Go  
16 ahead, Mr. Bradley, but let's see if we can streamline this a  
17 little bit.

18 MR. BRADLEY: I will do my best, Your Honor. There  
19 is a number of important issues here, and I want to be sure to  
20 present them to the Court.

21 THE COURT: None of them are unimportant. Most of  
22 them I have already heard about. But go ahead.

23 MR. BRADLEY: Understood, Your Honor.

24 So CommScope moves for judgment as a matter of law under  
25 Rule 50(a) that there has been no inducement, and we likewise

1 oppose TQ Delta's motion that there is inducement or has been  
2 inducement. And, first, let me comment on their motion they  
3 made on this point, and then I'll tie it into our competing  
4 motion.

5 In the presentation that was given just now, TQ Delta did  
6 not even present any indication on a number of requirements of  
7 inducement, including the requirement that CommScope must know  
8 of the patents during the accused period that we're talking  
9 about. There's no indication of that, and I'll talk about it  
10 more in our motion.

11 There was a statement that CommScope -- I wrote it down  
12 the attorney said knew or should have known that his actions  
13 would cause infringement. That is not the correct legal  
14 standard. The correct legal standard is that we must have  
15 knowingly induced the infringing acts and had a specific  
16 intent to encourage another's infringement.

17 That's -- the standards are all in Commill v. Cisco, 575  
18 U.S. 632, and Vita-Mix v. Basic Holding, 581 F.3d 1317 at  
19 1328. And for those reasons of failure of even identifying  
20 the elements of inducement, their motion should be denied.

21 Also, our motion should be granted on inducement, and for  
22 the reasons I'm about to describe, there are further reasons  
23 why their motion should be denied.

24 So as this Court knows, TQ Delta has impermissibly or in  
25 our view has impermissibly attended to capture pre-2015 sales.

1 And when I say pre-2015, I'm talking about as of that  
2 threshold date that we were describing earlier. They have  
3 attempted to capture those pre-2015 sales of accused products  
4 in a manner that is contrary to law, including 35 U.S.C. §  
5 286.

6 Their theory is that they -- CommScope has induced  
7 infringement during the statutory period post-2015 as to those  
8 products sold before the threshold date in 2015. That theory  
9 is both unsupported in law. It's also -- was not proven  
10 through the evidence.

11 And an additional issue that could arise for the jury to  
12 award damages against CommScope is that if the verdict form --  
13 and I know we have not gotten there yet, but if the verdict  
14 form does not have a separate question that outlines, if  
15 there's an award of damages, what portion of this or what  
16 amount of this is due to the pre-2015 sales that are now  
17 allegedly being induced during the statutory damages period,  
18 if that's not separated out, then -- and the jury awards a  
19 damages amount, in our view that damages award would be  
20 subject to attack because it is not supported in law and not  
21 supported by the evidence.

22 THE COURT: We'll talk about the verdict form later.  
23 I want to hear about the rules of Rule 50(a) and what's  
24 applicable here.

25 MR. BRADLEY: Yes, Your Honor. As I mentioned,

1 their theory is unsupported by the evidentiary record.  
2 CommScope has not actively induced infringement and no  
3 reasonable jury could find otherwise.

4 Indeed, for the '686, '354, '008, and '835 Patents, TQ  
5 Delta did not have any expert testify as to alleged induced  
6 infringement. Doctor Cooklev specifically said so. That's in  
7 the trial transcript where he limited his testimony to just  
8 three patents, and we carved out the others. I can provide a  
9 citation, but there's no evidence as to those four patents I  
10 just mentioned.

11 Thus, CommScope is entitled to JMOL as to no inducement  
12 for all the asserted claims of all the asserted patents, and  
13 that requires eliminating from the jury's consideration  
14 12,715,222 units of accused products spanning the time period  
15 August 2010 through the threshold date in August 2015. And  
16 that also impacts -- we'll talk more when we get to damages,  
17 but that impacts their \$22 million-plus figure.

18 As I mentioned, in order for the jury to render a verdict  
19 of induced infringement, they would have to find that there's  
20 an underlying act of direct infringement, that CommScope knew  
21 of the patents, that CommScope knowingly induced the  
22 infringing acts, and CommScope possessed a specific intent to  
23 encourage another's infringement of the patents, such as  
24 CommScope's customers. All four of those requirements have  
25 not been shown and no reasonable jury could find otherwise.

1 TQ Delta has not proved any underlying act of direct  
2 infringement by a CommScope customer such as AT&T. The  
3 testimony for the reasons that my colleague just described in  
4 the context of direct infringement show that not only was  
5 there no infringement by CommScope, there is no showing  
6 that -- of any underlying act of direct infringement by a  
7 CommScope customer.

8 TQ Delta did not introduce any post-2015 evidence of  
9 actual use of an accused feature of an accused product that  
10 had been sold before 2015, any actual use by a CommScope  
11 customer. There's no evidence before the jury regarding the  
12 models, the dates of use, use by which customer at which time,  
13 which patents, which features are involved. No evidence.

14 Moreover, Doctor Cooklev did expressly -- as I mentioned,  
15 did not address the four patents I noted earlier and he made  
16 for all the patents, the ones he did address, made no effort  
17 to explain which of the patents apply to which of the models  
18 used by which customer regarding which feature. No evidence  
19 of that.

20 THE COURT: Take two minutes and finish your  
21 argument on inducement, Mr. Bradley.

22 MR. BRADLEY: Yes, Your Honor.

23 Second of all, there's no evidence that CommScope had  
24 knowledge of the patents. TQ Delta provided pre-suit notice  
25 as to only four of the seven patents in this case, according

1 to the record. The only evidence of record is Exhibit 124-B,  
2 and it shows that was from a letter May 9, 2017, which is  
3 nearly two years after the 2015 damages period.

4 And that letter has an Exhibit A to it that outlines  
5 which notice for which patent and which claims were given, and  
6 there was no pre-suit notice as to the '686 Patent, claim 36;  
7 the '048 Patent, claim 5; and the '354 Patent, claim 10. And  
8 for all the rest of the asserted claims, notice was first  
9 given as of that date of that letter in 2017.

10 A third reason why there is no induced infringement is  
11 that CommScope did not knowingly induce any infringing acts.  
12 There's no evidence at all as to what these software or  
13 firmware features even were, the ones that they rely on as  
14 allegedly inducing infringement. There's no evidence of what  
15 they are, what they relate to, who did them, and when.

16 The fourth reason, Your Honor, is that there is no  
17 evidence at all that CommScope possessed a specific intent to  
18 encourage another's infringement of the patent. There's just  
19 simply no evidence.

20 The only evidence that was presented came in through Mr.  
21 Steven Wauters, who testified that intellectual property is  
22 important to CommScope. He said very much so. CommScope  
23 takes patents and patent rights very seriously. He said that  
24 as well. There's no evidence of any specific intent by  
25 CommScope to encourage another's infringement.

1 And for each of those reasons, CommScope is entitled to  
2 judgment as a matter of law of no inducement, and for similar  
3 reasons TQ Delta's motion should be denied.

4 THE COURT: All right.

5 Now, having heard that, let's move to the general topic  
6 of validity and invalidity. Again, I'd like to hear from  
7 Defendants first on their theories regarding anticipation and  
8 obviousness.

9 MS. WROBLEWSKI: Good afternoon, Your Honor. Karlee  
10 Wroblewski on behalf of CommScope.

11 THE COURT: Please proceed.

12 MS. WROBLEWSKI: Thank you.

13 Commscope moves for judgment as a matter of law as to  
14 invalidity of claim 36 of the '686 Patent, claim 14 of the  
15 '008 Patent, claim 5 of the '048 Patent, and claim 10 of the  
16 '835 Patent. Claim 10 depends from claim 8.

17 Specifically, as to anticipation, CommScope moves for  
18 judgment as a matter of law that claim 14 of the '008 Patent  
19 and claim 10 of the '835 Patent are invalid as anticipated.

20 The evidence presented by CommScope demonstrated that  
21 each of these -- of the elements of the asserted claim 14 of  
22 the '008 Patent were disclosed by the Jones reference, which  
23 is Exhibit 50. No reasonable jury would find otherwise.

24 Doctor Leonard Cimini testified that each element of  
25 claim 14 was well-known prior to the priority date in November

1 1999 of the '008 Patent.

2 Doctor Madisetti and Marcos Tzannes admitted that key  
3 elements of the '008 Patent were well-known and failed to  
4 distinguish how these conventional components in combination  
5 were not old.

6 No reasonable jury would find that each of the elements  
7 of the claim were not met by the Jones reference.

8 As to the '835 Patent, the evidence presented  
9 demonstrated that each of the elements of the asserted claim  
10 of the '835 Patent were disclosed by G.992.1, the ADSL  
11 reference, Exhibit 48.

12 Mr. Bruce McNair testified that each element of claim 10  
13 was well-known prior to the priority date of March 2004 of the  
14 '835 Patent.

15 No reasonable jury would find that each of the elements  
16 of the claim are not met by the G.992.1 reference.

17 As to both of these patents, Doctor Madisetti's testimony  
18 would not have convinced a reasonable jury otherwise.

19 Turning to obviousness, CommScope moves for judgment as a  
20 matter of law that claim 36 of the '686 Patent, claim 14 of  
21 the '008 Patent, claim 5 of the '048 Patent, and claim 10 of  
22 the '835 Patent are invalid as obvious.

23 The evidence -- turning first to the '686 Patent, the  
24 evidence presented demonstrated that each of the elements of  
25 asserted claim 36 of the '686 Patent were disclosed by FI-071,



1 Exhibit 47, in combination with the G.992.1 standard ADSL,  
2 which was Exhibit 48.

3 In addition, there was a motivation to combine these  
4 references and no reasonable jury could find otherwise.  
5 Specifically, there is a motivation to combine these  
6 references and a person of skill in the art would have a  
7 reasonable expectation of success.

8 Doctor Cimini testified that each element of claim 36 was  
9 well-known prior to the August 2000 priority date of the '686  
10 Patent. In addition, CommScope presented evidence of Robert  
11 Pizzano and David Krinsky, the named inventors of the '686  
12 Patent, that demonstrated that the DMT symbols that were  
13 mapped to one bit of the diagnostic message and idle channel  
14 noise information were well-known prior to the '686 Patent.

15 Tq Delta did not present any testimony through its own  
16 expert to rebut evidence set forth by CommScope.

17 Turning next to the '048 Patent, the evidence presented  
18 demonstrated that each of the elements of the asserted claim 5  
19 of the '048 Patent were previously known by the Mazzoni  
20 reference, Exhibit 59, in combination with the G.993.1  
21 standard known as VDSL1, which is Exhibit 52. Specifically,  
22 all of the elements of the claim 5 of the '048 Patent would  
23 have been known in light of both of these references combined.

24 There was a motivation to combine Mazzoni with VDSL1 and  
25 Mazzoni with LB-31 with a reasonable expectation of success

1 prior to the priority date of October 2000.

2 Dr. Richard Wesel testified that each element of claim 36 was  
3 well-known prior to the priority date.

4 In addition, CommScope presented evidence of Michael  
5 Lund, a named inventor on the '048 Patent, that proved that  
6 key elements of the '048 Patent were well-known prior to the  
7 '048 Patent.

8 Tq Delta did not present any testimony through its own  
9 experts to rebut evidence as set forth by CommScope.

10 Accordingly, no reasonable juror could find otherwise,  
11 and we ask that our judgment as a matter of law as to  
12 obviousness of the claim 5 of the '048 Patent be granted.

13 Turning to the '008 Patent, the evidence presented at --  
14 the evidence presented demonstrated that each of the elements  
15 of claim 14 of the '008 Patent were disclosed by the Jones  
16 reference, which is Exhibit 50, in light of the knowledge of a  
17 person of ordinary skill in the art. In addition, there was a  
18 motivation to combine the Jones reference with the knowledge  
19 of a person of ordinary skill in the art with a reasonable  
20 expectation of success.

21 Dr. Leonard Cimini testified that each element of claim  
22 14 was well-known prior to the priority date in November 1999.  
23 Doctor Madisetti and the inventor Marcos Tzannes admitted that  
24 key elements of the '008 Patent were well-known and failed to  
25 distinguish how these conventional components in combination

1       were novel.

2               Turning next to the '835 Patent, the evidence presented  
3       demonstrated that each of the elements of the asserted claim  
4       10 of the '835 Patent were disclosed by G.992.1 in combination  
5       with the ITU contribution SC-060. SC-060 was Exhibit 57. In  
6       addition, there was a motivation to combine G.992.1 with  
7       SC-006, and Doctor Bruce McNair testified accordingly.

8               Mr. Bruce McNair also testified that claim 10 was  
9       well-known prior to the priority date of March 2004 of the  
10       '835 Patent.

11              Additionally, the two references, the G.992.1 standard  
12       and SC-060, would have been the subject of a person of skill  
13       in the art and a person of skill in the art would have been  
14       motivated to combine the two references with a reasonable  
15       expectation of success.

16              Accordingly -- in addition, turning back to the '686  
17       Patent, the evidence demonstrated that the FI-01 reference was  
18       publicly available prior to the priority date of August 2000.

19              Accordingly, CommScope moves as a judgment as a matter of  
20       law to these issues regarding invalidity.

21              THE COURT: Thank you, counsel.

22              Let me hear competing argument in support of Plaintiff's  
23       affirmative motions for judgment as a matter of law of  
24       validity.

25              MS. RATYCZ: Your Honor, Ashley Ratycz on behalf of

1 TQ Delta. Would you like me to address the four patents that  
2 counsel just addressed first and then move on to the other  
3 three?

4 THE COURT: That's probably the most efficient.

5 MS. RATYCZ: Beginning with claim 36 of the '686  
6 Patent, TQ Delta opposes CommScope's motion and TQ Delta moves  
7 pursuant to Federal Rule of Civil Procedure 50(a) for a  
8 judgment that claim 36 of the '686 Patent has not been proven  
9 obvious in view of the combination of G.992.1 and FI-071.

10 CommScope has failed to provide legally sufficient  
11 evidence that a reasonable jury could find by clear and  
12 convincing evidence that claim 36 is invalid as obvious.

13 First of all, CommScope's expert, Doctor Cimini, did not  
14 articulate nor present any evidence of a motivation to combine  
15 these two references and did not articulate or present any  
16 evidence that could support a finding that a person of  
17 ordinary skill in the art would have had a reasonable  
18 expectation of success in arriving at the claimed invention.  
19 For that reason alone, Doctor Cimini's invalidity analysis  
20 should fail as a matter of law.

21 Second, CommScope has not shown that all the elements of  
22 claim 36 are actually disclosed in these references. For  
23 example, Doctor Cimini presented absolutely no evidence that  
24 G.992.1 or FI-071 discloses a transceiver as that term was  
25 construed by this Court. Specifically, the Court construed

1 that term to require some type of common circuitry that is  
2 shared between a transmitter and a receiver.

3 Doctor Cimini did not discuss this construction during  
4 his analysis and fails to provide or apply that construction  
5 to any portion of either of these references. Again, for this  
6 reason alone, Doctor Cimini's analysis fails, and TQ Delta's  
7 entitled to judgment as a matter of law that the combination  
8 of G.992.1 and FI-071 does not render claim 36 of the  
9 '686 Patent obvious.

10 And to be clear, I believe counsel said that there was a  
11 motivation to combine and a reasonable expectation of success,  
12 but if you look back at the transcript, you will not find  
13 that. Doctor Cimini did not discuss that during his  
14 testimony.

15 Moving on to claim 10 of the '835 Patent, TQ Delta  
16 opposes CommScope's motion and TQ Delta moves, again pursuant  
17 to Rule 50(a), for a judgment that claim 10 of the '835 Patent  
18 has not been proven anticipated over G.992.1 or over the  
19 combination of G.992.1 and SC-060.

20 First, regarding the combination of G.992.1 and SC-060,  
21 CommScope's expert, Mr. McNair, did not articulate or present  
22 any evidence of a motivation to combine these two references  
23 and did not articulate or present any evidence that a person  
24 of ordinary skill in the art would have had a reasonable  
25 expectation of success in arriving at the claimed invention.

1           Once again, though counsel represented this that these  
2 things were present, the expert who was presented by CommScope  
3 in this case did not present any testimony for either of those  
4 points.

5           Mr. McNair's obviousness analysis should fail as a matter  
6 of law for this reason alone.

7           Second, CommScope has not shown that all the elements of  
8 claim 10 are disclosed in these references. Like I just  
9 explained for Doctor Cimini, Mr. McNair presented absolutely  
10 no evidence that G.992.1 or SC-060 discloses a transceiver as  
11 that term was construed by this Court. Again, this word was  
12 provided a very specific meaning by the Court, and experts are  
13 required to apply that meaning and show that every element of  
14 the claim as the terms were construed by the Court is found in  
15 the prior art. Mr. McNair simply did not do that in this  
16 case.

17           For this reason alone, TQ Delta moves -- TQ Delta is  
18 entitled to judgment as a matter of law that neither G.992.1  
19 alone or a combination of G.992.1 and SC-060 invalidates claim  
20 10 of the '835 Patent.

21           In addition, Doctor Madisetti provided convincing  
22 testimony that certainly questioned the clear and convincing  
23 evidence standard that CommScope is required to show here that  
24 several of these elements was not met.

25           Moving on to claim 14 of the '008 Patent, TQ Delta again

1 opposes CommScope's motion and moves pursuant to Rule 50(a)  
2 for a judgment that claim 14 of the '008 Patent has not been  
3 proven anticipated by or obvious in view of the Jones  
4 reference. Once again, CommScope has failed to show evidence  
5 that a reasonable jury by clear and convincing evidence could  
6 show that this claim is anticipated or obvious.

7       Regarding the obviousness analysis that CommScope relies  
8 on, Doctor Cimini did not articulate or provide any evidence  
9 that a person of ordinary skill in the art would be motivated  
10 to modify the Jones reference in order to arrive at the  
11 claimed invention. This is required for an obviousness  
12 analysis with a single reference.

13       Further, he did not present any evidence that a person of  
14 ordinary skill in the art would have had any success in  
15 modifying Jones to arrive at the claimed invention. His  
16 invalidity analysis once again should fail for this reason  
17 alone.

18       Second, CommScope has not shown that all the elements of  
19 claim 14 are actually disclosed in Jones. For example, once  
20 again, Doctor Cimini has not presented any evidence that Jones  
21 discloses a transceiver. In fact, Doctor Cimini once again  
22 did not apply the Court's construction of transceiver in any  
23 way at all.

24       Moreover, Doctor Cimini actually agreed that the device  
25 that was described in Jones did not include common circuitry

1 that is shared between a transmitter and receiver and instead  
2 discloses a transmitter and a receiver in two separate  
3 devices.

4 Further, Doctor Cimini has failed to show that Jones  
5 discloses a pseudorandom number generator. Instead, Doctor  
6 Cimini points to a scrambler that outputs a series. Doctor  
7 Cimini presented no evidence to demonstrate that such a series  
8 is actually pseudorandom as required by the claim. He merely  
9 speculated.

10 If he's going to speculate and require -- and rely on  
11 obviousness, he is again required to provide that motivation  
12 to modify the reference and a reasonable expectation of doing  
13 so to arrive at the claimed invention. He simply did not do  
14 that here.

15 As such, TQ Delta moves for judgment as a matter of law  
16 that Jones does not anticipate or render obvious claim 14 of  
17 the '008 Patent.

18 And, finally, claim 5 of the '048 Patent, TQ Delta again  
19 opposes CommScope's motion and moves pursuant to Rule 50 for a  
20 judgment that claim 5 of the '048 Patent has not been proven  
21 obvious in view of Mazzoni in combination with VDSL1 and/or  
22 LB-031.

23 I first want to make one statement. I believe counsel  
24 might have called it VDSL2. I believe we're all talking about  
25 VDSL1 here, just so the record is clear.



1 Commscope has again failed to provide legally sufficient  
2 evidence that a reasonable jury could find by clear and  
3 convincing evidence that this claim is invalid as obvious.  
4 CommScope's expert, Doctor Wesel, was required to show that a  
5 person of ordinary skill in the art would have been motivated  
6 to combine Mazzoni with VDSL1 and/or LB-031. He only provided  
7 a motivation to combine the Mazzoni reference with VDSL1. He  
8 provided absolutely no analysis of whether there was a  
9 motivation to combine Mazzoni with LB-031.

10 So talking just about his motivation to combine Mazzoni  
11 with VDSL1, Doctor Wesel explained that an engineer at  
12 Siemens, looking at Mazzoni and developing a product, would  
13 look at the messaging scheme in VDSL1. But as he admitted,  
14 VDSL1 was never commercialized. In fact, CommScope's other  
15 expert, Doctor Ransom, even testified that VDSL1 would not  
16 work. I believe his testimony was that it was a dead end and  
17 was never commercialized.

18 Even CommScope's own counsel in its opening statement  
19 represented that VDSL1 was never commercialized. So I don't  
20 believe there is any dispute that VDSL1 was never used, was  
21 never commercialized.

22 Going back to Doctor Wesel's reasoning for combining  
23 Mazzoni with VDSL1, his reasoning falls short. If VDSL1 was  
24 never commercialized, it was never used, and it wouldn't work,  
25 it was a dead end, a person of skill in the art would not have

1 looked at VDSL1 as an option for modifying Mazzoni.

2 Further, he provided no explanation of whether a person  
3 of ordinary skill in the art would have had a reasonable  
4 expectation of success in combining these two to arrive at the  
5 claimed invention. And that makes sense--VDSL1 was not  
6 commercialized, VDSL1 didn't work, it was a dead end.

7 For this reason alone, CommScope has failed to meet its  
8 burden of clear and convincing evidence with respect to claim  
9 5 of the '048 Patent.

10 As such, TQ Delta moves for judgment as a matter of law  
11 that Mazzoni, in combination with VDSL1 and/or LB-031, was  
12 does render obvious claim 5 of the '048 Patent.

13 Your Honor, would you like me to move to the other three  
14 patents?

15 THE COURT: Yes. As expeditiously as possibly.

16 MS. RATYCZ: Absolutely, Your Honor.

17 TQ Delta moves, pursuant to Rule 50(a), for judgment that  
18 claim 17 of the '881 Patent, claim 18 of the '411 Patent, and  
19 claim 10 of the '354 Patent are not invalid.

20 Commscope did not pursue any of these at trial and has  
21 failed to provide any evidence regarding the alleged  
22 invalidity of any of these claims. In fact, none of the prior  
23 art references that CommScope originally identified, I don't  
24 even think they're in the record. As such no reasonable juror  
25 could find by clear and convincing evidence that any of these

1 claims are invalid.

2 Thank you, Your Honor.

3 MS. WROBLEWSKI: Your Honor, may I respond to those  
4 three patents with respect to validity?

5 THE COURT: Briefly.

6 MS. WROBLEWSKI: CommScope asks that TQ Delta's  
7 motion for judgment as a matter of law as to no invalidity of  
8 the asserted claims of the '881, '354, and '411 Patents be  
9 denied. These are defenses that were raised -- affirmative  
10 defenses that were raised and dropped pursuant to the Court's  
11 narrowing order and suggestion of narrowing and were not at  
12 issue in this case.

13 THE COURT: Thank you.

14 All right. Let's turn to the willfulness and no  
15 willfulness competing motions for judgment as a matter of law.  
16 Let me hear from the Plaintiff first as to their motion, and  
17 then I'll hear responsively from the Defendants.

18 MR. FINK: Your Honor, Rudy Fink for the Plaintiff  
19 TQ Delta.

20 Not to repeat the evidence that Ms. Ratycz has presented,  
21 but TQ Delta believes that no reasonable juror could find as a  
22 matter of law that CommScope's conduct has not been willful  
23 under Rule 50.

24 To briefly summarize, CommScope was contacted about the  
25 patents by TQ Delta over nine years ago. The parties have

1 vigorously negotiated that dispute since then and about the  
2 intervening 10 years.

3 There's also been evidence in the case that CommScope far  
4 back attended standards meetings where these standards were  
5 discussed, including the technology was disclosed and did not  
6 contest their approval. There has been testimony from  
7 multiple witnesses that they did not ever in their history at  
8 CommScope review patents to determine infringement.

9 Similarly, at a high level, there's been ample evidence  
10 that CommScope manufactures a high-tech product that they know  
11 is covered by multiple patents, that they have no standard  
12 essential patents that cover that product, and they have  
13 admitted that they do not have a license to any of these  
14 standard essential patents.

15 For those reasons, TQ Delta believes that no reasonable  
16 juror could find that CommScope's conduct has not been  
17 willful.

18 THE COURT: All right. Thank you.

19 Let me hear competing argument from Defendants, please.

20 MS. RUBSCHLAGER: Good afternoon, Your Honor.

21 Katherine Rubschlager on behalf of the CommScope Defendants.

22 Can I proceed?

23 THE COURT: You may proceed.

24 MS. RUBSCHLAGER: TQ Delta has not established that  
25 CommScope has willfully infringed any of the patents-in-suit.

1           As we just heard with respect to induced infringement,  
2       CommScope did not have knowledge of all of the patents-in-suit  
3       before the filing of this case. At trial TQ Delta presented  
4       no evidence that specifically established that CommScope knew  
5       of four of the seven patents in this case.

6           The only evidence that TQ Delta proffered is that -- is a  
7       letter from TQ Delta to CommScope where TQ Delta identified  
8       four of the seven patents at issue here for the '686, '048,  
9       and '354 Patents. TQ Delta provided no evidence that  
10      CommScope actually knew of those patents. General knowledge  
11      of TQ Delta's patent portfolio is not enough to establish the  
12      knowledge requirement for willfulness purposes.

13          And, second, CommScope established that it reasonably  
14      believed that it did not infringe the patents-in-suit. TQ  
15      Delta did not put forth any evidence establishing that loop  
16      diagnostic mode, dynamic D, or the ROC feature are used by  
17      CommScope's customers. In fact, Mr. Miller testified that ROC  
18      is not enabled in accused products.

19          And even if TQ Delta established that CommScope knew of  
20      all of the patents-in-suit, there has been no evidence that  
21      CommScope deliberately or intentionally infringed in a  
22      reckless manner. Thus, no reasonable juror could find that  
23      CommScope willfully infringed and judgment as a matter of law  
24      of willfulness is appropriate in this instance.

25          For these reasons, Your Honor, we move for judgment as a

1 matter of law under Rule 50(a) that CommScope did not  
2 willfully infringe the patents-in-suit, and we request that TQ  
3 Delta's motion for judgment as a matter of law with respect to  
4 willfulness be denied.

5 THE COURT: Thank you.

6 Let's move to the breach of contract competing motions.  
7 Defendants have moved for judgment as a matter of law that the  
8 contractual obligation created under the contribution of  
9 certain patents-in-suit to the practicing standard has  
10 occurred. Plaintiffs have moved that no such breach has  
11 occurred. Each are seeking judgment in competing fashion as a  
12 matter of law under Rule 50(a).

13 Let me hear from the Defendants first, and then I'll hear  
14 from the Plaintiffs.

15 MR. BARTON: Good afternoon, Your Honor. Ross  
16 Barton.

17 THE COURT: Go ahead, Mr. Barton.

18 MR. BARTON: Thank you, sir.

19 So CommScope moves for judgment as a matter of law that  
20 TQ Delta breached its contractual obligations imposed --  
21 self-imposed contractual obligations in connection with its  
22 declarations of essentiality to the ITU.

23 The evidence demonstrated that TQ Delta undertook a  
24 binding contractual obligation to offer patent licenses on  
25 terms on worldwide non-discriminatory basis and on reasonable

1 terms and conditions. The evidence introduced at trial  
2 demonstrated that at no point since TQ Delta came into  
3 possession of the asserted patents in this case has it offered  
4 such terms.

5 The evidence demonstrated that the standard rate card  
6 that TQ Delta has relied upon and -- and offered at various  
7 points is not compliant with RAND principles.

8 The evidence further demonstrates that nobody has  
9 actually paid those standard rate card rates, and that those  
10 rate card rates are inconsistent with the prior licenses that  
11 the predecessor in interest to the patents, Aware, entered  
12 into in connection with licenses it entered into with other  
13 third parties.

14 The evidence further demonstrates and we believe  
15 demonstrates that no reasonable juror could find that TQ Delta  
16 has not breached its FRAND obligation, that TQ Delta's  
17 pre-suit offers from that 2013 point of first contact until  
18 initiation of this lawsuit were not reasonable and  
19 non-discriminatory, and that in fact TQ Delta's demand in this  
20 case is not reasonable and non-discriminatory.

21 That is, in part, based on TQ Delta's licenses with  
22 CommScope's direct competitors such as ZyXEL and Zhone that  
23 show rates that are wildly disparate from those that TQ Delta  
24 has offered and is now demanding.

25 Furthermore, Mr. Becker -- or Doctor Becker testified

1 that the current demand that TQ Delta is making is  
2 approximately 10 times over what the evidence showed a RAND  
3 rate would be. And for those reasons, we believe that  
4 summary -- not summary judgment, judgment as a matter of law  
5 of breach is appropriate.

6 THE COURT: Thank you.

7 Let me hear competing argument from Plaintiff on this  
8 issue.

9 MR. FINK: Hello, Your Honor. Rudy Fink for the  
10 Plaintiff TQ Delta. May I proceed?

11 THE COURT: Please do.

12 MR. FINK: Your Honor, no reasonable juror under  
13 Rule 50 could find that TQ Delta has breached its contractual  
14 obligations as discussed in this case.

15 As Your Honor is aware, the elements of breach of  
16 contract are that there's a contract performance breach of  
17 damages. Taking those elements in reverse order, there have  
18 been no element -- no evidence of damages in this case that  
19 CommScope has suffered regarding any of its offers or claims  
20 to offer.

21 There also is no portfolio competent evidence of breach  
22 that a reasonable juror could rely on in this case. As Mr.  
23 Barton acknowledged, the commitment is to offer a worldwide  
24 license on terms and conditions that were reasonable and  
25 non-discriminatory. In this case, the only evidence has shown



1 that TQ Delta in fact did offer on a worldwide basis the same  
2 terms and conditions that it offered to other parties. There  
3 is no countervailing evidence that a reasonable juror could  
4 rely on.

5 Doctor Becker calculated damages in this case, but they  
6 were only on a U.S.-only basis. There was not evidence of  
7 what a worldwide rate that would contradict TQ Delta's  
8 evidence putting forward its terms.

9 CommScope has not contradicted or contested that it has  
10 received these standard rates from TQ Delta that were offered  
11 on a worldwide basis. The evidence is they did not accept  
12 those rates. But in terms of the contractual promise, those  
13 rates were offered. They just were ultimately not accepted.

14 In this case there have been different discussions of  
15 rates beyond that point that were in this case, but those  
16 concerned a U.S.-only damages model which is not subject to  
17 these global FRAND offer concerns.

18 And for that reason, TQ Delta believes that a Rule 50  
19 motion on the breach of contract issue should be granted as no  
20 reasonable juror could find that TQ Delta had breached its  
21 promise.

22 THE COURT: All right. Thank you.

23 All right. Let's next take up the issue of damages, both  
24 as to Plaintiff's request for judgment as a matter of law of  
25 damages in the amount of just over \$89 million as a running

1 royalty and the competing motions under Rule 50(a) urged by  
2 Defendants concerning no damages based on methodology,  
3 pre-2015 sales, and holdout.

4 Let's begin with the Plaintiff, and then I'll hear from  
5 the Defendants.

6 MR. FINK: Your Honor, Rudy Fink for the Plaintiff  
7 TQ Delta.

8 May I proceed?

9 THE COURT: Please.

10 MR. FINK: Your Honor, no reasonable juror could  
11 find under Rule 50 that TQ Delta was not legally entitled to  
12 its full measure of damages as articulated by Doctor Putnam.  
13 That was a running royalty in the amount of a total of  
14 \$89,060,041 through, trial covering the period of August 12th,  
15 2015, through June 30th, 2022. TQ Delta is seeking that full  
16 amount through that time represented by or going forward of a  
17 reasonable royalty. But as discussed earlier, and maybe as  
18 Your Honor suggested, something the parties can talk about  
19 when they're addressing other issues, the lump sum was to  
20 essentially represent that \$89 million number that had been  
21 talked about through that June 30th date.

22 TQ Delta is also seeking holdout damages of \$7.4 million  
23 through that same period. TQ Delta believes that there no  
24 reasonable juror could find countervailing evidence to support  
25 a different outcome. CommScope has no countervailing

1 competent evidence to contest that.

2 Doctor Becker provided a damages theory in this case, but  
3 he relied on a series of licenses from Siemens, Infineon, and  
4 Lantiq. As the Court saw and the jury saw, the person who  
5 would have been on the other side of that hypothetical  
6 negotiation, Dr. Michael Tzannes, disagreed on all material  
7 points with the license that Doctor Becker proposed, and,  
8 therefore, would ultimately essentially be countervailing,  
9 we believe, to a proper outcome.

10 And for those reasons, TQ Delta believes that it is  
11 entitled to the full measure of damages it has moved for in  
12 this case.

13 THE COURT: All right. Let me hear from Defendants  
14 on this topic.

15 MR. BRADLEY: Your Honor, Kirk Bradley for  
16 CommScope.

17 Plaintiff's motion for judgment as a matter of law under  
18 Rule 50(a) as to damages should be denied. The reasons  
19 largely track and overlap with the reasons I'm about to  
20 describe for our competing motion, and that competing motion  
21 is CommScope moves for judgment as a matter of law under Rule  
22 50(a) that no damages should be awarded against CommScope. No  
23 reasonable jury could award damages to TQ Delta.

24 There is three groups here. The first group is the group  
25 of damages, the set of damages that are based on CommScope's

1 alleged inducing activity, and that's the amount they seek of  
2 \$22,243,806 based on units sold pre-2015 for which there were  
3 allegedly infringing acts during the statutory damages period.  
4 For the reasons I described earlier, particularly in  
5 connection with induced infringement, no reasonable jury could  
6 award that amount of damages to TQ Delta.

7 The second category concerns the holdout damages that  
8 TQ Delta has requested. TQ Delta is not entitled to any  
9 damages based on alleged holdout. Foremost, there's no  
10 evidence supporting how Doctor Putnam arrived at his upcharge  
11 or his rate of 20 cents per unit for holdout. That number is  
12 entirely arbitrary and not based in any accepted or even in  
13 any damages theory at all. He just announced 20 cents per  
14 unit. There's no basis for that request.

15 Secondly, on this same point, there's no evidence to  
16 support awarding a separate amount for alleged holdout.  
17 Damages in the patent context are to compensate, not to  
18 punish. The holdout damages that they seek serve -- would  
19 serve only to punish, and they are, therefore, improper. And  
20 that request in the amount of \$67.3 million could not be  
21 awarded by a reasonable jury, and this Court should not let  
22 that issue even go to the jury.

23 The third category is the \$67 million, approximately, of  
24 reasonable royalty based damages that TQ Delta seeks. There  
25 are numerous reasons, numerous flaws in the methodology

1 applied that would prevent a reasonable jury from awarding  
2 damages to TQ Delta. One of those reasons is that they valued  
3 the DSL technology as a whole rather than valuing the  
4 incremental value associated with the seven patents that are  
5 at issue in this case.

6 An additional reason is that they conducted a valuation  
7 based on cost savings to CommScope's customer AT&T rather than  
8 cost savings to CommScope, for example. And that approach is  
9 also not appropriate. They have used -- introduced through  
10 Doctor Putnam a damages theory based on a sampling analysis  
11 that Doctor Cooklev used with completely arbitrary knockout  
12 terms, and they did so to calculate expected essential patent  
13 families per DSL standard. And then they divided that cost  
14 savings to AT&T by the number of allegedly essential patent  
15 families to arrive at a damages rate of 33 cents per unit per  
16 standard, but TQ Delta's royalty rates for the patent families  
17 at issue is based on the families and their inclusion, or  
18 supposed inclusion, in the DSL standards and not on the  
19 incremental value of the patents. That is a flawed  
20 methodology.

21 TQ Delta also used a methodology that relied on the  
22 entire market value of the accused CommScope products without  
23 any evidence establishing or demonstrating that the patented  
24 features actually drive the demand for the entire product. We  
25 heard just here towards the end of the evidentiary record that

1 the accused products have a number of features beyond the DSL  
2 technology, and TQ Delta never demonstrated that the entire  
3 market value rule would be appropriate, and yet they base  
4 their damages on the value of the products, the entire  
5 products.

6 Instead, as Your Honor is well aware, CommScope has  
7 explained that royalties should be based on the smallest  
8 saleable patent practicing unit and not the entire market  
9 value pressed by TQ Delta and its expert.

10 Additionally--there's a couple of more--TQ Delta and its  
11 expert improperly used and applied the Nash bargaining  
12 solution. It wasn't named that during trial because of Your  
13 Honor's pretrial ruling, but we heard direct testimony from  
14 Doctor Putnam that he applied a 50/50 split, meaning a split  
15 between the implementors and innovators, and that's not  
16 permissible. Doctor Putnam testified that a 50/50 split would  
17 be appropriate because the ITU says both groups must be  
18 treated fairly and so both groups share in the gains. There's  
19 no basis for that and it is contrary to law to use a 50/50  
20 split, and particularly in the manner that was presented by  
21 Doctor Putnam.

22 TQ Delta impermissibly and improperly rejected the  
23 hypothetical negotiation, and, in addition, when CommScope  
24 presented the hypothetical negotiation, TQ Delta's theory  
25 presented at least in Doctor Putnam's reports, I'm not sure if

1 he testified about it at trial, but they use an improper and  
2 incorrect hypothetical negotiation date. Their date --  
3 TQ Delta's date varies between 2004 and 2006, depending on  
4 which of the three standards we've been talking about was  
5 adopted, meaning the VDSL2 standard in 2006, the G.bond  
6 standard in 2005, and VDSL in 2004. Under the law, the date  
7 of the hypothetical negotiation relates to the date of the  
8 alleged first infringement, which here would be November 18,  
9 2008, which is the issue date of -- the earliest issue date of  
10 one of the patents-in-suit. It's the '881 Patent.

11 The Federal Circuit has made clear that, quote, "The  
12 correct determination of the hypothetical negotiation date is  
13 essential for properly assessing damages." That's *Laser*  
14 *Dynamics*, 694 F.3d 51 at 75.

15 THE COURT: Counsel, you don't need to cite the  
16 reference to the case.

17 MR. BRADLEY: Yes, Your Honor.

18 The last part of my motion is that TQ Delta has applied  
19 incorrect expiration dates for three of the patents, and that  
20 affected their damages request such that the damage requests  
21 included a period of time for which patents had already been  
22 expired.

23 In particular, just to wrap it up, I'll note that the  
24 parent application of the asserted '686 Patent was an excluded  
25 asset, as the evidence showed, in the transaction between

1 TQ Delta and Aware. It was not sold -- the parent was not  
2 sold to TQ Delta by Aware, and, in fact, the evidence was that  
3 patent is now owned by Broadcom. And yet in TQ Delta's  
4 damages analysis, because it's based on an entire families,  
5 they're valuing patents that are owned by Broadcom. They're  
6 also valuing patents that have expired.

7 And as I mentioned, the expiration at least of the '008  
8 Patent, Doctor Putnam counted a period of time after which  
9 the '008 Patent had already expired, and Doctor Putnam made  
10 no adjustment for these expired patents, and it impacts the  
11 Family 1 patent '686 as well as the Family 2 patents, the  
12 '881.

13 And because TQ Delta and its expert did not properly  
14 account for the patents' expiration dates, and actually  
15 included damages for a portion of the period after which the  
16 patent -- the '881 Patent had already expired, no reasonable  
17 jury could award the damages amount sought by TQ Delta and, in  
18 fact, no reasonable jury could award any amount of damages for  
19 the reasons I've described.

20 And I'd like to make one correction a moment ago. I just  
21 said the '881 Patent the very most recent time. I meant '008.

22 THE COURT: All right. Thank you, counsel.

23 That appears to be all the argument for the various  
24 motions presented pursuant to Rule 50(a) of the Federal Rules  
25 of Civil Procedure. The Court reflects that Rule 50(a)



1 clearly provides that if a party has been fully heard on an  
2 issue during a jury trial and if the Court finds that a  
3 reasonable jury would not have a legally sufficient  
4 evidentiary basis to find for the party on that motion, the  
5 Court may grant judgment as a matter of law.

6 Considering the application of the rules and the  
7 arguments that have been presented to the Court on these  
8 various grounds this afternoon, the Court denies Plaintiff's  
9 motions for judgment as a matter of law and the Court denies  
10 Defendants' various motions for judgment as a matter of law,  
11 both pursuant to Rule 50(a).

12 All right, counsel. It is 20 minutes until 5:00, more or  
13 less. Let's take a 10-minute recess, and then I will meet you  
14 in my office and we'll conduct an informal charge conference  
15 with regard to the most current iteration of the final jury  
16 instructions and verdict form.

17 I haven't done a head count out there. I don't think  
18 I've got enough seats for everybody. I've probably got about  
19 12 or 13 seats in my office. There are clearly more Defense  
20 lawyers in the room than there are Plaintiff's lawyers.  
21 You-all draw straws and send me about a dozen people in 10  
22 minutes, and I'll meet you in chambers.

23 The Court stands in recess.

24 (The proceedings were concluded at 4:45 p.m.)  
25

1 I HEREBY CERTIFY THAT THE FOREGOING IS A  
2 CORRECT TRANSCRIPT FROM THE RECORD OF  
3 PROCEEDINGS IN THE ABOVE-ENTITLED MATTER.  
4 I FURTHER CERTIFY THAT THE TRANSCRIPT FEES  
5 FORMAT COMPLY WITH THOSE PRESCRIBED BY THE  
6 COURT AND THE JUDICIAL CONFERENCE OF THE  
7 UNITED STATES.

8  
9 S/Shawn McRoberts

03/23/2023

10 \_\_\_\_\_ DATE \_\_\_\_\_  
11 SHAWN McROBERTS, RMR, CRR  
12 FEDERAL OFFICIAL COURT REPORTER  
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Shawn M. McRoberts, RMR, CRR  
Federal Official Court Reporter